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NOTICE  
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TO: All Parties on the Qwest Section 271  
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*MAS*

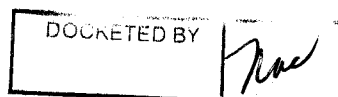
DATE: July 13, 2001

SUBJECT: Workshop on the Retail Parity  
Draft Report

Arizona Corporation Commission

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There will be a Workshop on August 8-9, 2001 on the Retail Parity Draft Report recently issued by the Third Party Test Administrator, Cap Gemini Telecom Media & Networks U.S., Inc., d/b/a CGE&Y Telecom Media & Networks ("CGE&Y"). A copy of the Retail Parity Draft Report is attached. The Workshop will be held at the Commission's offices located at 1200 West Washington Street, Phoenix, Arizona. Interested parties should report to Hearing Room 1 on the first floor of the Commission at 9:00 a.m. on August 8<sup>th</sup>.

CGE&Y will make the underlying and supporting data for the Retail Parity Draft Report available for inspection by any interested parties prior to the Workshop. Parties may examine the data beginning Tuesday, July 17, 2001. The hours of availability are from 8 a.m. to 5 p.m. Monday through Friday, by appointment only. Parties should call Twila Wright at 480-736-8500 to schedule an appointment. The data will be housed at and available for inspection at CGE&Y's offices located at 1438 W. Broadway Road, Suite B-250, Tempe, Arizona.

Parties will be required to submit all of the questions concerning the Report that they intend to ask at the Workshop in writing by July 27, 2001. The template to be used to submit questions is attached. Submission of the questions in writing in advance will in no way preclude parties from asking follow-up questions at the Workshop based upon their initial submissions.

For parties unable to attend the Workshop in person, there will be a conference bridge available. The bridge number will be provided at a later date.

If you have any questions regarding this Notice, please do not hesitate to contact me at (602) 542-6022.

Qwest 271 OSS Test Workshop Questions

Date Submitted

Question Number	Submitter (Company)	Interim Report (e.g. Retail Parity, Rel Mgmt,etc.)	Report Section Reference	Question	(one per row)
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Original and **ten** copies of the foregoing  
were filed this 13<sup>th</sup> day of July,  
2001, with:

Docket Control  
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# **Final Report Retail Parity Evaluation**

**July 6, 2001**

**Version 2.0**

**Prepared For:**

***Arizona Corporation Commission***

**Cap Gemini Ernst & Young**

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**Document Control Sheet**

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0.06	5/02/01	Draft Version 0.06 distributed to ACC for comments
0.07	5/23/01	Draft Version 0.07 distributed to ACC for comments
1.0	5/31/01	Draft Version 1.0 distributed to TAG for comments
2.0	7/6/01	Final Version 2.0 distributed to ACC

## Final Report Retail Parity Evaluation

3. Retail Parity Evaluation.....	3
3.1 IMA-GUI Pre-Order/Order.....	8
3.1.1 Introduction.....	8
3.1.2 Scope .....	8
3.1.3 Process.....	9
3.1.4 Results.....	12
3.2 IMA-GUI Maintenance and Repair .....	43
3.2.1 Introduction.....	43
3.2.2 Scope .....	43
3.2.3 Process.....	44
3.2.4 Results.....	46
3.3 EDI Pre-Order/Order .....	51
3.3.1 Introduction.....	51
3.3.2 Scope .....	52
3.3.3 Process.....	53
3.3.4 Results.....	55
3.4 EB-TA Maintenance and Repair.....	57
3.4.1 Introduction.....	57
3.4.2 Scope .....	58
3.4.3 Process.....	58
3.4.4 Results.....	60
Appendix A - Glossary .....	62
Appendix B - Incident Work Order Summary.....	63

### 3. Retail Parity Evaluation

As part of the Qwest Arizona 271 Certification Testing effort, Cap Gemini Ernst & Young (CGE&Y) conducted a Retail Parity Evaluation (RPE) to assess Qwest's ability to provide Competitive Local Exchange Carriers (CLECs) with non-discriminatory access to its Operations Support Systems (OSS). The purpose of the evaluation was to determine whether a CLEC representative, using Qwest OSS interfaces, can provide a level of service and experience that is substantially the same in time and manner as that which a Qwest representative can provide using internal Qwest OSS interfaces.

The specific OSS interfaces available to CLECs that were evaluated are:

- Interconnect Mediated Access – Graphical User Interface (IMA-GUI)
- Electronic Data Interchange (EDI)
- Electronic Bonding – Trouble Administration (EB-TA)

All of the above forms of OSS access are classified by Qwest as “Interconnect Mediated Access” because they do not provide a direct link to OSS functions; all incoming transactions undergo mediation processes once they pass through the Qwest firewall in order to be routed to the appropriate back-end systems.

The IMA-GUI system is a proprietary Qwest system specifically designed by Qwest for CLECs to access Qwest's ordering systems. The CLEC experience when using this system is almost entirely dependent upon design considerations and system architecture decisions made by Qwest.

EDI is an international standard for the interchange of business data between trading partners. Qwest defines the application data elements and transactions that are unique to its business, and it is the responsibility of the CLECs to design their own front-end systems to capture information and translate it into the data elements and transactions defined by Qwest. Once those data elements reach Qwest and are accepted by the mediation process, however, they feed into the same systems used by IMA-GUI and Qwest's own retail systems.

EB-TA is a system specifically set up between Qwest and certain trading partners for the performance of Maintenance and Repair (M&R) functions by those trading partners.

#### Methodology

The RPE examined the following OSS functionality and business processes:

- IMA-GUI Pre-Order/Order
- IMA-GUI M&R
- EDI Pre-Order/Order
- EB-TA M&R

The following transactions were evaluated within the areas mentioned above:

Transaction	Order		Type		M&R
	New	Change	Suspend / Restore	Conv / Win Back	
Address Validation	X	X	X	X	
CSR Validation		X	X	X	
TN Selection	X				
Service Availability	X	X			
Facility Availability	X				
Appointment Scheduler	X	X			
Create and Submit LSR/order	X	X	X	X	
Open Trouble Report					X
Retrieve Circuit/Trouble History					X
Perform MLT					X
Status Trouble					X

The scope of the RPE was modified from the methodology outlined in the Test Standards Document (TSD) and the Master Test Plan (MTP) with the concurrence of the Arizona Corporation Commission (ACC) and Doherty and Company, Inc. (DCI). The RPE was performed in two phases. In Phase I, 36 various pre-order/order test cases and 8 additional iterations of the "conversion of a small business Plain Old Telephone Service (POTS) customer" test case were executed. The results of Phase I were used to identify areas of concentration for Phase II, and to determine the number of iterations required for a statistically relevant test.<sup>1</sup> Analysis of Phase I results identified 96 test cases for execution during Phase II.

Paired resale and retail test scripts<sup>2</sup> were developed from the test cases identified in the Arizona 271 MTP. Each resale test script had a corresponding retail test script enabling a comparison between IMA-GUI, EDI, and EB-TA and the equivalent retail systems. Each paired test script was given the same case description. The case descriptions included:

- addresses in the same wire centers
- the same number of lines
- the same account type (Residence or Business)
- the same service type (e.g., POTS, ISDN-BRI)
- the same service attributes (e.g., number of lines, features)
- the same activity (e.g., New Connect, Change, Conversion/Win back)

<sup>1</sup> CGE&Y Archive File: RPE #1 - Variable Iterations Proposal 6/2000 & RPE Phase II Testing Executive Summary

<sup>2</sup> CGE&Y Archive File: RPE #2 - Test Script Examples

Each test script executed only those pre-order and order transactions applicable to the test case description.

In order to control the execution of the RPE test, each script contained step-by-step instructions to the service representative for data entry, collection of screen prints, and performing and collecting requested transaction timings. CGE&Y performed on-site monitoring<sup>3</sup> of the retail service representative and the resale service representative during the execution of each test script. The execution of paired test scripts was synchronized so that both the retail and resale activities requested by the scripts occurred during the same morning/afternoon hours of the same business day.<sup>4</sup>

Qualitative measures were used where an exact means of comparison was not possible. Quantitative measures were used where "apples-to-apples" comparisons of data elements were possible. Timeliness measures were used where measurable elapsed timeframes were available. Measures included query response times, quality of information provided, and number of steps required to complete the transaction.

The RPE measured equivalent resale/retail access to Qwest's OSS, including the time and effort required to complete transactions and the overall experience of submitting an order or performing M&R functions. Therefore, orders were only required to pass through the OSS until the receipt of a Firm Order Confirmation (FOC) – resale, or until acceptance by the Service Order Processor (SOP) - retail. Orders submitted during testing were cancelled prior to provisioning.

## Results

The results of the RPE are summarized in the sections that follow.

### IMA-GUI Pre-Order/Order

The RPE found that the experience of a CLEC performing pre-order and order transactions and M&R activities using the various available OSS interfaces was substantially<sup>5</sup> similar to that of Qwest performing similar activities using internal OSS interfaces.

The evaluation showed that the quality and quantity of information obtained by a CLEC through pre-order queries were substantially the same as that obtained by Qwest through similar transactions, and that the overall experience in submitting an order was also substantially the same for both.

<sup>3</sup> CGE&Y Archive File: RPE #3 - On-Site Test Administrator Monitor Instructions

<sup>4</sup> CGE&Y Archive File: RPE #4 - P-I & P-II Test Schedules

<sup>5</sup> While the TSD uses the word "material" to denote this concept, in order to remove the precise economic, legal, and engineering connotations from the statistical analysis, CGE&Y prefers to substitute the word substantial, meaning the extent of disparity at which parties have agreed to limit the risk of an incorrect determination of parity to no greater than .05.

For the purposes of this evaluation “field” is defined as a data input requirement, and “step” is defined as any progression in the overall process such as clicking a button, moving to a new screen, etc. CGE&Y found disparity in the numbers of fields and steps required for a CLEC using IMA-GUI to complete an order (including pre-order steps) versus Qwest; the numbers of fields and steps were greater, across most scenarios, for CLECs. CGE&Y believes, however, that this disparity is largely accounted for by the guidelines imposed by the Ordering and Billing Forum (OBF). OBF guidelines for pre-order and order transactions were developed for a competitive provider to be able to conduct pre-order activities and to order telecommunications services from an incumbent carrier. Incumbent carriers, on the other hand, do not follow these same guidelines when ordering services for their own customers. As a result of these factors, CGE&Y believes that the number of fields and steps is an area where absolute parity can never realistically be achieved.

CGE&Y likewise found a statistically significant disparity in the response times for pre-order queries for a CLEC using the IMA-GUI interface versus those of Qwest using equivalent internal interfaces. CGE&Y believes, however, that this disparity is at least in part due to systems architectural considerations that are quite common in the area of business-to-business e-commerce transactions.

The fact that both retail and resale use the same back-end systems to process queries and order transactions is significant. The architecture put in place to allow CLECs to access Qwest back-end systems is, in CGE&Y’s opinion, a necessary step to preserve the integrity and security of these systems. While CGE&Y feels that it may be possible for Qwest to make the mediation process for these interfaces faster and more efficient, it finds that some transactional delay over and above that of comparable retail systems is reasonable and such delays do not necessarily imply that CLECs do not have a meaningful opportunity to compete.

#### **IMA-GUI Maintenance and Repair**

M&R scenarios were performed primarily to determine that the response to these transactions provided comparable information to both resale and retail.

CGE&Y was able to verify that the functionality provided to both retail and resale was substantially the same. For example, the functions necessary for retail to open a trouble ticket were the same for resale. Comparable Mechanized Loop Test (MLT) results were received for both retail and resale. Upon request, trouble history was available to both retail and resale along with trouble ticket status. The timeliness data gathered supports parity for the queries of issuing a ticket and obtaining its status.

The number of steps and fields over all the transactions and services tested is similar or fewer for resale than retail. The exception to this was issuing a ticket

on non-designed services, where 11-12 fields were required for resale versus 3 for retail.

**EDI Pre-Order/Order**

CGE&Y compared the quality of information presented to both EDI and Qwest's retail systems in pre-order and order transactions. The focus of the evaluation was to determine whether both retail and resale were able to retrieve equivalent information from Qwest's OSS, such as similar appointment times, requested TNs, etc.

The evaluation showed that the quality and quantity of information obtained through EDI pre-order queries was substantially the same as that obtained by Qwest through similar queries, and that the overall experience in submitting an order was also substantially the same for both.

**EB-TA Maintenance and Repair**

The EB-TA M&R scenarios were performed primarily to determine that the response to these transactions provided comparable information to both resale and retail. CGE&Y was able to verify that the functionality provided to both retail and resale was substantially the same. For example, the functions necessary for resale to open a trouble ticket were the same for retail. Comparable MLT results were received for both retail and resale. Trouble history was available to both resale and retail along with trouble ticket status.

The evaluation showed that the quality and quantity of information obtained through EB-TA M&R transactions were substantially the same as that obtained by Qwest through similar transactions, and that the overall experience in submitting M&R transactions was also substantially the same for both.

**Conclusion**

Based on the complete RPE, including qualitative, quantitative, and timeliness measures, CGE&Y finds that the experience of a CLEC using the various available OSS interfaces is substantially the same to that of Qwest performing similar activities using internal OSS interfaces. CGE&Y also finds that Qwest provides CLECs with non-discriminatory access to its OSS for the purposes of initiating service requests and M&R trouble transactions.

The RPE is only one of several components of the CGE&Y Arizona 271 OSS Test. Results of other components of the test may provide further analysis.

### 3.1 IMA-GUI Pre-Order/Order

#### 3.1.1 Introduction

The IMA-GUI pre-order/order evaluation was structured to evaluate the mechanized service request capability available to a CLEC representative (resale) using Qwest OSS interfaces and that available to a Qwest representative (retail) using the equivalent internal Qwest OSS interfaces when performing similar activity. The evaluation compared a CLEC's ability to process pre-order queries and submit LSRs with the Qwest retail equivalent transactions. The orders submitted during testing were cancelled prior to any provisioning. Following the MTP/TSD, the terms "pre-order" and "order" were used for the purposes of this evaluation and are used throughout this document. It must be pointed out that, unlike resale, Qwest retail ordering activities do not distinguish between pre-order and order transactions; for Qwest the two are combined into order transactions.

#### 3.1.2 Scope

The test included the following pre-order/order transactions for evaluation:

Transaction	Order Type			
	New	Change	Suspend / Restore	Conv / Win Back
Address Validation	X	X	X	X
CSR Validation		X	X	X
TN Selection	X			
Service Availability	X	X		
Facility Availability	X			
Appointment Scheduler	X	X		
Create and Submit LSR/order	X	X	X	X

The evaluation methods for the pre-order/order transactions are explained below:

- ❑ Address Validation: query response times, quality of information provided, and number of steps required to complete the query were observed, documented, and compared between Qwest retail interfaces and IMA-GUI
- ❑ Customer Service Record (CSR) Validation: IMA-GUI query response times, quality of information provided, and number of steps required to complete the query were observed and documented
- ❑ Telephone Number (TN) Selection: query response times, quality of information provided, and number of steps required to complete the query

were observed, documented, and compared between Qwest retail interfaces and IMA-GUI

- ❑ Service Availability: IMA-GUI query response times, quality of information provided, and number of steps required to complete the query were observed and documented
- ❑ Facility Availability: query response times, quality of information provided, and number of steps required to complete the query were observed, documented, and compared between Qwest retail interfaces and IMA-GUI
- ❑ Appointment Scheduler: query response times, quality of information provided, and number of steps required to complete the query were observed, documented, and compared between Qwest retail interfaces and IMA-GUI
- ❑ Create and Submit Local Service Request (LSR)/order: the extent of pre-order to order integration and the number of steps and fields required to complete and submit an LSR was compared between IMA-GUI and the functional retail equivalents

### 3.1.3 Process

The scope of the RPE was modified from the methodology outlined in the TSD and the MTP with the concurrence of the ACC and DCI. The RPE test was performed in two phases. In Phase I, 36 various pre-order/order test cases and 8 additional iterations of one (conversion of a small business POTS customer) test case were executed.<sup>6</sup>

- Phase I test results identified areas of focus for Phase II.
- Results of the “conversion of a small business POTS customer” test case were used to obtain timeliness measure variation ranges.

As a result of the analysis performed on Phase I test data<sup>7</sup> (detailed in Section 3.1.4, “Results”), 96 additional test cases were identified for execution during Phase II.<sup>8</sup>

For both phases, test cases for pre-order and order on which qualitative, quantitative and timeliness measures could be collected were taken from a subset of the test scenarios identified in Appendix A of the MTP.

<sup>6</sup> CGE&Y Archive File: RPE #5 - P-I Test Scripts

<sup>7</sup> CGE&Y Archive File: RPE #1 - Variable Iterations Proposal 6/2000 & RPE P-II Testing Executive Summary

<sup>8</sup> CGE&Y Archive File: RPE #6 - P-II Cells

Paired resale and retail test scripts were developed from the test cases.<sup>9</sup> Each resale test script had a corresponding retail test script, enabling a comparison between IMA-GUI and the equivalent retail systems. Each paired test script was given the same case description. The case descriptions included:

- addresses in the same wire centers
- the same number of lines
- the same account type (Residence or Business)
- the same service type (e.g., POTS, ISDN-BRI)
- the same service attributes (e.g., number of lines, features)
- the same activity (e.g., New Connect, Change, Conversion/Win back)

Each test script executed only those pre-order and order transactions applicable to the test case description.

In order to control the execution of the RPE test, each script contained step-by-step instructions to the service representative for data entry, collection of screen prints, and performing and collecting requested transaction timings. CGE&Y monitored, on-site, the retail service representative and the resale service representative during the execution of each test script. The timing of paired test script execution was synchronized so that both the resale and retail activities required by the scripts occurred during the same morning/afternoon hours of the same business day.

Qualitative measures were used where an exact means of comparison was not possible. Quantitative measures were used where "apples-to-apples" comparisons of data elements were possible. Timeliness measures were used where measurable elapsed timeframes were available. Measures included query response times, quality of information provided, and number of fields and steps required to complete the transaction.

Transactions applicable to each test case description were performed. All three measures were applied to applicable transactions performed during paired resale and retail test script execution.

The following MTP and TSD entrance criteria were met prior to commencing the IMA-GUI pre-order/order test:

Criterion	Completed
The Pseudo-CLEC received Readiness Certification from Qwest.	✓
Qwest and the Pseudo-CLEC interfaces and systems (IMA-GUI	✓

<sup>9</sup> CGE&Y Archive File: RPE #2 - Test Script Examples

Criterion	Completed
and retail equivalent) were operational and stable.	
CGE&Y was granted access to the appropriate Qwest site(s) to conduct the on-site testing and monitoring. This included the creation of security badges and access to facilities and equipment that would permit controlled observation of Qwest service representative pre-order and order activities.	✓
CGE&Y was granted access to the appropriate Pseudo-CLEC site(s) to conduct the on-site testing and monitoring. This included the creation of security badges to secure locations and access to private test performance monitoring facilities and equipment whenever available.	✓
A Daily Test Order Monitoring Schedule was created by CGE&Y.	✓
CGE&Y members responsible for on-site monitoring were provided with on-site telephone access for use in communication with other CGE&Y members.	✓
Retail Parity test scripts were created by CGE&Y.	✓
The Pseudo-CLEC's ability to collect data during performance of CGE&Y provided test scripts was verified.	N/A *
CGE&Y's ability to access test data collected by the Pseudo-CLEC during performance of CGE&Y provided test scripts was verified.	N/A *
Valid account data were received from Qwest.	✓
Test data elements that define the Pseudo-CLEC for purposes of permitting interface activities with Qwest were populated in the necessary databases.	✓
The number of test iterations was identified.	✓
Test cases and iterations that were to be used to perform the evaluations were completed and available.	✓

\* CGE&Y Test Monitor collected data

### 3.1.4 Results

Phase II successfully executed 95 of the 96 scheduled paired test scripts. A failed address validation for one resale test script was included in Arizona Incident Work Order (AZIWO)1047-1 and that specific pair of test scripts was not re-scheduled. Qwest's response to the IWO identified that the address was entered incorrectly; CGE&Y concurred.

CGE&Y evaluated the quantity of pre-order and order transactions and found that the average number of required fields for resale was greater than the number of required fields for retail for simple POTS services (the reverse was true for complex services). The average number of steps required was consistently more for resale than for retail for all services tested. The greater numbers of fields and steps are the subject of AZIWO1111. CGE&Y's evaluation of the total pre-order query response times finds that across the scenarios, resale response times were substantially and, statistically significantly longer than for retail.<sup>10</sup> This is the subject of AZIWO1110.

The fact that both resale and retail businesses use the same back-end systems to process queries and order transactions is significant. The architecture put in place to allow CLECs to access Qwest back-end systems is, in CGE&Y's opinion, a necessary step to preserve the integrity and security of these systems. Moreover, the architecture was found to be sound and reasonably consistent with other models used in the business-to-business and third party trading partner software industry. While CGE&Y feels that it is possible for Qwest to make the mediation process for these interfaces faster and more efficient, it finds that some transactional delay over and above that of comparable retail systems is reasonable and that such delays do not necessarily imply that CLECs do not have a meaningful opportunity to compete.

The key quantitative, qualitative and timeliness questions answered by the RPE are addressed in the sections that follow.

#### 3.1.4.1 Timing Measurements

This section will focus on the statistical analysis of the Phase II RPE pre-order query response timings. These timings are the total response time for all pre-order query activities associated with each test script. The timings are therefore the sums of several individual query timings, and the number of timings per test script differs between resale and retail and for different order types and services. The following table illustrates this relationship:

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<sup>10</sup> CGE&Y Archive File: RPE #7 - P-II Data Summary

Service Group	Order Type	Number of timings	
		Retail	Resale
POTS	NEW	7	5
POTS	CHNG	4	2
POTS	CONV	9	2
ISDN	NEW	4	5
ISDN	CHNG	1	4
ISDN	CONV	3	4
CNTX	NEW	4	6
CNTX	CHNG	2	4
CNTX	CONV	1	4
PBX	NEW	4	4
PBX	CONV	1	4
PVT LINE	CONV	2	5

Each original timing result start time was arrived at by submitting a query as nearly as possible to the instant when the computer's clock switched to the next second. The finish time was the reading on the clock when the response was noted. If, for example, a query was submitted at 10:31:00 and the system clock read 10:31:03 when the response was noted, the timing would be recorded as 3 seconds. However, the actual elapsed time could have been anywhere from 3.00 to 3.99 seconds. Therefore, on average, the individual timing recordings are half a second shorter than the actual timings. Although this is equally true for both resale and retail individual timings, the total of all pre-order timings will be affected differently between resale and retail due to the different number of timings involved. For example, a retail POTS conversion involves nine pre-order timings, whereas a resale POTS conversion only involves two pre-order timings. This means the recorded elapsed time understates the true elapsed time by (on average) 4.5 seconds for retail and 1 second for resale. To perform a proper comparison, CGE&Y corrected for these biases before taking logarithms of the elapsed times. Then CGE&Y performed its analyses on the difference in the logarithms of the corrected elapsed times.

A similar process was followed in Phase I. In Phase I, most scenarios were performed only once, so it was only possible to evaluate sample size requirements for the various scenarios by "clumping" together those scenarios which are logically similar, had similar effects (differences in logarithms of corrected elapsed times), and had reasonably low standard deviations of effects. The table below illustrates the clumps which resulted from this process:

Bus Or Res	Order Type	Features	Service	n	resale _t (secs)	retail _t (secs)	effect	std d log t	ratio	Sugg- ested n	Detectable Effect	Phase II Scenarios	# of Phase II tests
RES	CHNG	Y	POTS	5	99	1	4.60	1.32	99.9	8	285%	A	8
BUS	(all)	(all)	PBX	3	33	3	2.61	0.50	13.6	4	161%	R,S	4
BUS	(all)	N	CTX	3	43	5	2.36	1.83	10.6	12	315%	O,P,Q	12
BUS	CHNG	Y	(all)	4	20	3	2.20	1.43	9.0	12	221%	E,N	7
(all)	NEW	N	(all)	5	118	39	1.61	1.27	5.0	12	186%	C,H,J,L,P,R	21
(all)	NEW	N	ISDN	2	185	57	1.42	0.54	4.1	4	180%	J,L	4
(all)	CHNG	N	ISDN	2	12	6	1.06	1.31	2.9	4	739%	K	4
(all)	CHNG	N	(all)	3	12	7	0.80	1.03	2.2	12	141%	B,F,K,O	20
BUS	(all)	N	PvtLine	2	31	36	0.15	0.53	1.2	4	175%	T	4
(all)	CONV	N	ISDN	3	25	75	(1.15)	0.35	.32	4	103%	M	4
(all)	NEW	Y	POTS	6	56	229	(1.38)	0.29	.25	4	82%	G	4
BUS	CONV	Y	POTS	9	17	185	(2.15)	0.76	.12	12	97%	I	12
RES	CONV	Y	POTS	3	19	770	(3.55)	1.30	.03	8	279%	D	8
										100	SubTotal		112
										8	Dups J,K,L,O,P,R		18
										92	Total Phase II Sample Size		94

Each Phase I scenario constitutes a unique combination of Market (Bus / Res), Order Type (New / Change / Conversion ), Features (Y/N), and Service (POTS / ISDN / Centrex / PBX / Private Line). Several of the clumps in the above table have "(all)" for one or more of these factors. For instance, the third row, labeled "BUS (all) N CTX," clumps together all Business market Centrex orders, without regard to whether they were New Connect, Change, or Conversion orders.

The other columns are explained as follows:

n:	Number of iterations
Resale _t (secs):	Total resale response time in seconds (after each individual query time increased by .5 seconds as described above) averaged over all iterations
Retail _t (secs):	Total retail response time in seconds (after each individual query time increased by .5 seconds as described above) averaged over all iterations
effect:	Average difference in the logarithms of resale_t and retail_t
std_d_log_t:	Standard deviation of difference in logarithms of resale_t and retail_t
ratio:	Antilog of effect. Can be approximately interpreted as the ratio of resale_t / retail_t
Suggested n:	Suggested Phase II sample size for this clump which would enable detection of a difference at least as large as observed in Phase I (assuming same variance). If the underlying difference in log response times is as

large as was observed in Phase I, using a sample size as large as this suggested sample size will ensure that there will be no greater than a 5% chance of concluding that there is parity of service

Detectable Effect	The effect detectable using the suggested sample size. For example, 300% indicates a situation where CLEC response times are four times as long as retail
Phase II Scenarios:	Which actual Phase II scenarios correspond to this clump
# of Phase II tests	The number of Phase II tests actually performed which would fall in this clump

The variables, which most distinguish the clumps from each other, are Service and Order Type. Figures 3.1.4.1a and 3.1.4.1b illustrate the relationship of the difference in Phase I log response times to Service and Order Type, respectively.

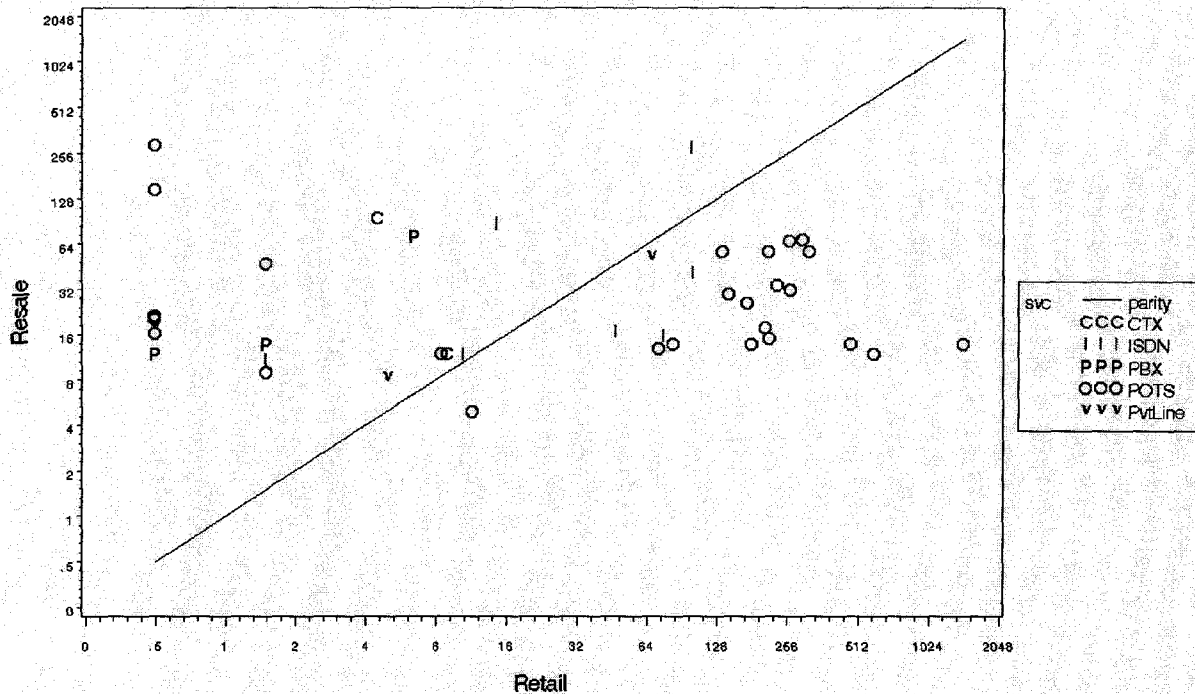
Figure 3.1.4.1a: Phase I Total Response Time — Resale vs Retail by Service

Each point is a test case result: horizontal axis value is the retail result, vertical axis value is Resale result

Diagonal Line indicates parity performance

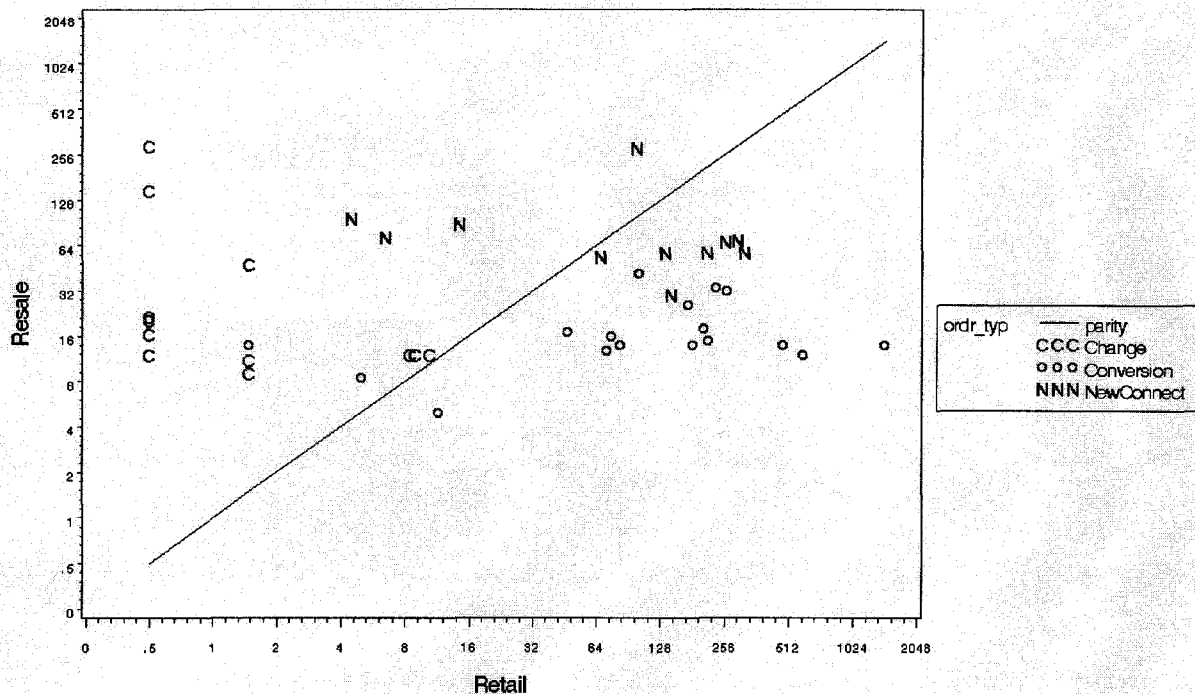
Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail

Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail



**Figure 3.1.4.1b: Phase I Total Response Time — Resale vs Retail by Order Type**

Each point is a test case result: horizontal axis value is the retail result, vertical axis value is Resale result  
 Diagonal Line indicates parity performance  
 Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail  
 Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail



The Phase I results<sup>11</sup> suggest dramatic differences in the relationship between resale and retail pre-order query response times from clump to clump. Many of the clumps exhibited substantially longer resale than retail times. However, POTS conversions and new connects with features exhibited much longer retail than resale times, primarily due to several extremely long retail address validation times (1440 seconds, 600 seconds, 480 seconds, etc.). It was determined that script changes were necessary to correctly measure the retail address validation times. Therefore the Phase I data were used only to size the Phase II sample, and not pooled with the Phase II data for final analysis.

The clumps suggested by the Phase I data are not quite mutually exclusive – some Phase I tests belong to more than one clump. Given the resale versus retail differences observed in Phase I, it was desired to have sufficient sample size in Phase II to be 95% sure of detecting differences at least as large.

<sup>11</sup> CGE&Y Archive File: RPE #8 - P-I Data Summary

There were 20 test scenarios examined within Phase II, with the number of iterations per scenario varying from 2 through 12. The following table provides the results and statistical calculations for each of these 20 scenarios:

Scenario	Plot Symbol	Bus or Res	Order Type	Features	Service	n	resale_t	retail_t	effect	ratio	std_d_log_t	delta	t	crit_t	p_value
1	A	RES	CHNG	Y	POTS	8	18.63	6.75	0.99	2.69	0.20	4.87	13.77	1.89	0.0000
2	B	RES	CHNG	N	POTS	6	23.17	7.50	1.13	3.08	0.36	3.09	7.56	2.02	0.0003
3	C	RES	NEW	N	POTS	6	64.67	22.83	1.00	2.72	0.48	2.09	5.11	2.02	0.0019
4	D	RES	CONV	Y	POTS	8	23.88	14.75	0.45	1.56	0.41	1.10	3.10	1.89	0.0087
5	E	BUS	CHNG	Y	POTS	4	24.50	7.00	1.28	3.59	0.27	4.71	9.42	2.35	0.0013
6	F	BUS	CHNG	N	POTS	6	23.17	6.83	1.23	3.42	0.26	4.77	11.68	2.02	0.0000
7	G	BUS	NEW	Y	POTS	4	55.75	20.75	0.99	2.69	0.26	3.75	7.50	2.35	0.0025
8	H	BUS	NEW	N	POTS	5	66.50	22.10	1.07	2.92	0.42	2.56	5.71	2.13	0.0023
9	I	BUS	CONV	Y	POTS	12	22.58	14.08	0.49	1.64	0.29	1.71	5.93	1.80	0.0000
10	J	RES	NEW	N	ISDN	2	97.00	12.00	2.12	8.32	0.25	8.42	11.91	6.31	0.0267
11	K	BUS	CHNG	N	ISDN	4	29.25	2.50	2.61	13.60	0.93	2.81	5.62	2.35	0.0056
12	L	BUS	NEW	N	ISDN	2	93.00	21.00	1.59	4.90	0.59	2.67	3.78	6.31	0.0824
13	M	B/R	CONV	N	ISDN	4	39.75	33.50	0.15	1.17	0.24	0.65	1.30	2.35	0.1423
14	N	BUS	CHNG	Y	CNTX	3	18.67	5.67	1.37	3.94	0.99	1.39	2.40	2.92	0.0692
15	O	BUS	CHNG	N	CNTX	4	17.75	12.50	0.56	1.74	0.88	0.63	1.26	2.35	0.1490
16	P	BUS	NEW	N	CNTX	4	56.75	19.50	1.08	2.96	0.18	6.18	12.37	2.35	0.0006
17	Q	BUS	CONV	N	CNTX	4	22.50	4.00	2.03	7.59	0.70	2.90	5.81	2.35	0.0051
18	R	BUS	NEW	N	PBX	2	52.50	7.50	2.00	7.42	0.50	3.98	5.63	6.31	0.0560
19	S	BUS	CONV	Y	PBX	2	23.50	2.00	2.49	12.11	0.45	5.52	7.81	6.31	0.0405
20	T	BUS	CONV	N	PVT LINE	4	25.25	6.50	1.39	4.01	0.33	4.17	8.35	2.35	0.0018

Each Phase II scenario constitutes a unique combination of Market (Bus / Res), Order Type (New / Change / Conversion), Features (Y/N), and Service (POTS / ISDN / Centrex / PBX / Private Line). The other columns are explained as follows:

n:	Number of iterations
resale_t:	Total resale response time in seconds (after each individual query time increased by .5 seconds as described above) averaged over all iterations
retail_t:	Total retail response time in seconds (after each individual query time increased by .5 seconds as described above) averaged over all iterations
effect:	Average difference in the logarithms of resale_t and retail_t
ratio:	antilog of effect. Can be approximately interpreted as the ratio of resale_t / retail_t

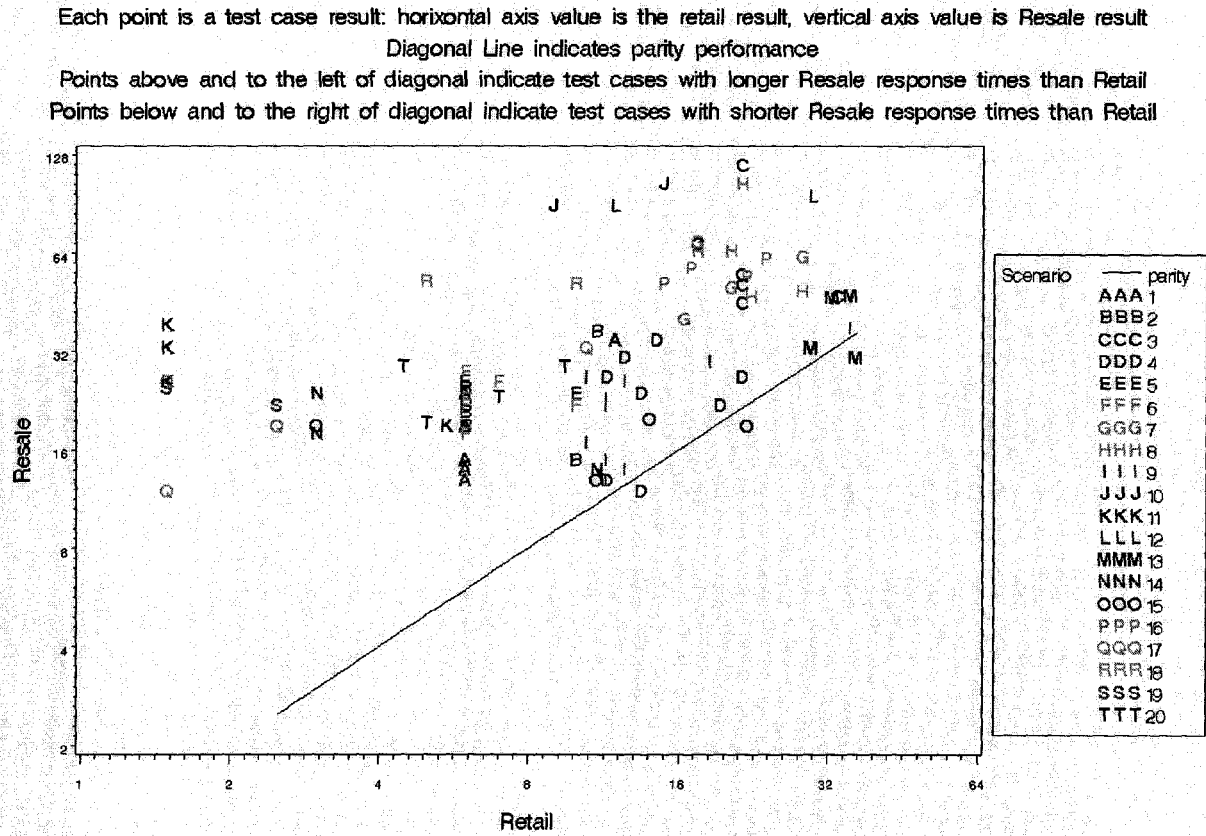
<b>std_d_log_t:</b>	Standard deviation of difference in logarithms of resale_t and retail_t
<b>delta:</b>	Substantiality index – ratio of effect / std_d_log_t. D-statistic of TSD Section 9. Where this is greater than .143, the difference between resale and retail timeliness is to be considered substantial
<b>t:</b>	The Student's t statistic – (Square root of n) * delta
<b>crit_t:</b>	One-tailed .05 significance level critical value of the Student's t distribution with n-1 degrees of freedom
<b>p_value:</b>	The probability of observing at least as extreme a result if in fact service is exactly at parity. If this is less than .05 (or equivalently, if $t > \text{crit}_t$ ), then a statistically significant disparity has been observed

Per Section 9 of the TSD, when a difference is both statistically significant and substantial it will be considered evidence that access provided to the CLECs is not at parity with access provided to retail.

The above table indicates that for all scenarios examined in Phase II the timeliness of response was substantially longer for resale than for retail. In addition, for all scenarios except 12, 13, 14, 15, and 18 (none of which involved more than 4 iterations per scenario), the differences were statistically significant at the .05 level.

Figure 3.1.4.1c illustrates the results:

Figure 3.1.4.1c: Phase II Total Response Time — Resale vs Retail by Scenario



The diagonal line in Figure 3.1.4.1c indicates exact parity of service. Nearly all of the 94 points lie up and to the left of the diagonal line, with a significant number of them quite far from the diagonal. This indicates substantially longer response times for resale than for retail.

The following table examines each of the scenario-defining factors as main effects:

Bus or Res.	Order Type	Features	Service	n	resale t	retail t	ratio	effect	std. dl	og. t	delta	t	crit. t	p-value
			CNTX	94	34.93	12.78	3.02	1.10	0.73	1.51	14.65	1.66	0.0000	
			ISDN	17	29.12	9.88	3.83	1.34	0.85	1.59	6.54	1.75	0.0000	
			PBX	12	54.67	17.50	4.66	1.54	1.21	1.27	4.41	1.80	0.0005	
			POTS	3	43.33	5.50	9.72	2.27	0.59	3.87	6.71	2.92	0.0108	
			PVT LINE	60	32.66	13.25	2.42	0.89	0.43	2.04	15.78	1.67	0.0000	
				2	21.50	6.00	3.62	1.29	0.11	12.13	17.16	6.31	0.0185	
		N		53	42.42	13.75	3.62	1.29	0.77	1.68	12.20	1.67	0.0000	
		Y		41	25.24	11.54	2.38	0.87	0.61	1.42	9.09	1.68	0.0000	
	CHNG			35	21.97	7.00	3.51	1.26	0.74	1.71	10.09	1.69	0.0000	
	CONV			34	25.26	13.74	2.33	0.85	0.80	1.06	6.17	1.69	0.0000	

Bus or Res	Order Type	Features	Service	n	resale t	retail t	ratio	effect t	std_d log_t	delta t	crit_t	p_value	
BUS RES	NEW			25	66.22	19.58	3.47	1.24	0.53	2.37	11.84	1.71	0.0000
				62	34.81	12.22	3.37	1.22	0.78	1.56	12.24	1.67	0.0000
				32	35.16	13.88	2.43	0.89	0.57	1.55	8.79	1.70	0.0000

The first four columns indicate disaggregation levels analyzed for each row. A blank in these columns indicates that all possible values for that column are used in the results for that row. For instance, the last row considers all RES test scripts together, without regard for their Order Type, Features, or Service.

The first row indicates that over all 94 test scripts in Phase II, without regard to their unique factors, resale response times were about 3 times as long as retail response times, 35 seconds versus 13 seconds. This timeliness difference is statistically significant. (AZIWO1110) The other rows show that the substantiality and statistical significance of the timeliness difference persist within each value of each main effect considered alone.

Further analysis indicates that variation in effect is mostly explained by Service and Order Type, without regard to Bus/Res or presence/absence of Features. The following table illustrates the results for all combinations of Service and Order Type:

Bus or Res	Order Type	Features	Service	n	resale_retail			std_d_log						
					t	t	ratio	effect	t	delta	t	crit	t	p value
	CHNG		CNTX	7	18.14	9.57	2.47	0.91	0.95	<b>0.95</b>	2.51	1.94	<b>0.0228</b>	
	CHNG		ISDN	4	29.25	2.50	13.60	2.61	0.93	<b>2.81</b>	5.62	2.35	<b>0.0056</b>	
	CHNG		POTS	24	21.88	7.00	3.10	1.13	0.28	<b>4.03</b>	19.73	1.71	<b>0.0000</b>	
	CONV		CNTX	6	23.50	3.83	7.57	2.02	0.55	<b>3.68</b>	9.02	2.02	<b>0.0001</b>	
	CONV		ISDN	4	39.75	33.50	1.17	0.15	0.24	<b>0.65</b>	1.30	2.35	<b>0.1423</b>	
	CONV		PBX	1	25.00	1.50	16.67	2.81						
	CONV		POTS	21	23.38	14.12	1.66	0.51	0.35	<b>1.44</b>	6.58	1.72	<b>0.0000</b>	
	CONV		PVT LINE	2	21.50	6.00	3.62	1.29	0.11	<b>12.13</b>	17.16	6.31	<b>0.0185</b>	
	NEW		CNTX	4	56.75	19.50	2.96	1.08	0.18	<b>6.18</b>	12.37	2.35	<b>0.0006</b>	
	NEW		ISDN	4	95.00	16.50	6.39	1.85	0.48	<b>3.84</b>	7.69	2.35	<b>0.0023</b>	
	NEW		PBX	2	52.50	7.50	7.42	2.00	0.50	<b>3.98</b>	5.63	6.31	<b>0.0560</b>	
	NEW		POTS	15	62.90	22.03	2.78	1.02	0.39	<b>2.65</b>	10.26	1.76	<b>0.0000</b>	

All combinations of Service and Order Type examined in Phase II exhibited substantial differences between resale and retail response times. Of these, all except ISDN Conversions (less substantial difference), New PBX (sample size too small), and PBX conversions (n=1, no statistical comparison possible) were statistically significant. Figure 3.1.4.1d and Figure 3.1.4.1e illustrate the relationship of matched resale and retail response times to Service and Order Type:

Figure 3.1.4.1d: Phase II Total Response Time — Resale vs Retail by Service

Each point is a test case result: horizontal axis value is the retail result, vertical axis value is Resale result

Diagonal Line indicates parity performance

Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail

Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail

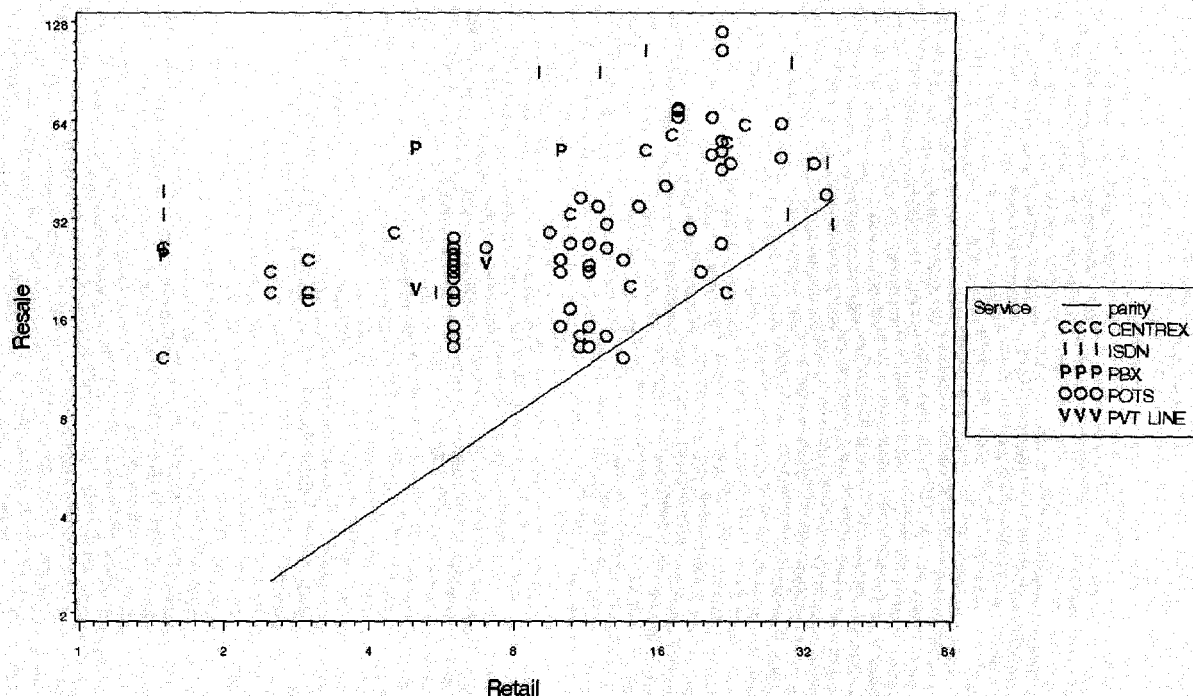
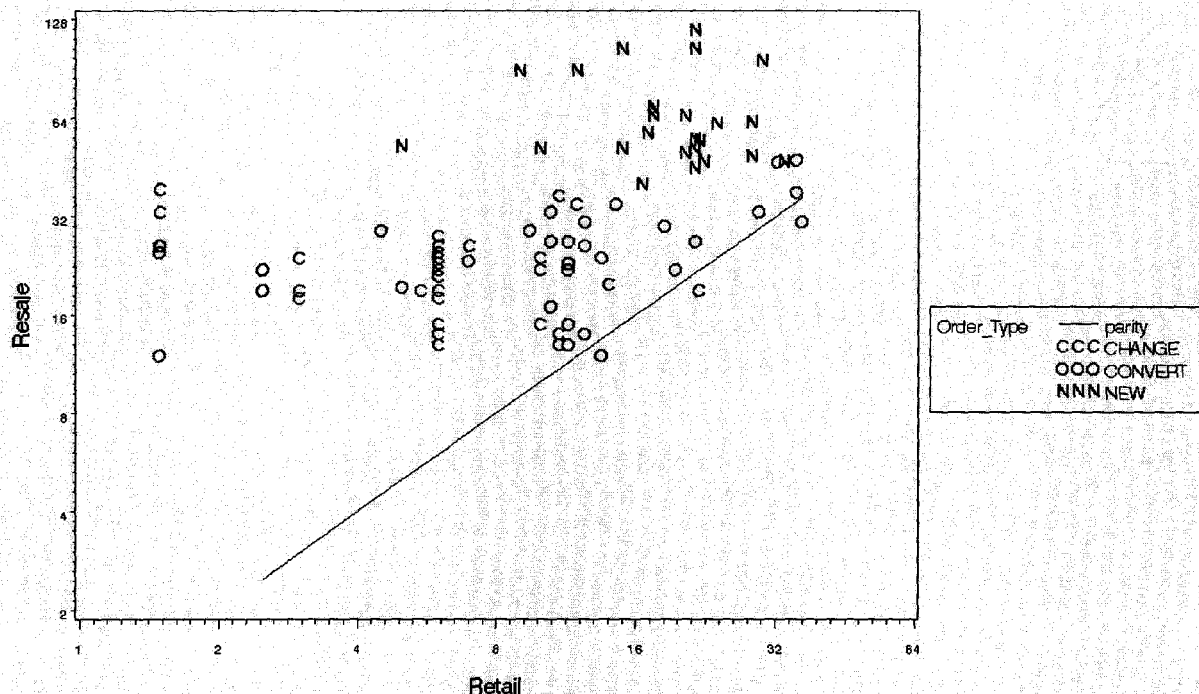


Figure 3.1.4.1e: Phase II Total Response Time — Resale vs Retail by Order Type

Each point is a test case result: horizontal axis value is the retail result, vertical axis value is Resale result  
 Diagonal Line indicates parity performance  
 Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail  
 Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail



The results clearly indicate substantial and significant disparity of pre-order IMA-GUI response timeliness, with resale service representatives waiting approximately three times as long for a response as retail service representatives. This difference applies reasonably consistently across the scenarios examined in Phase II, even to those scenarios which exhibited extremely long retail address validation times in Phase I. These extremely long Phase I retail times should therefore be viewed as an artifact of a temporary condition impacting retail address validations for POTS New Connects and Conversions with features.

The consistent disparity observed in Phase II is the subject of AZIWO1110.

**Re-Analysis of Phase II:** *Adjusting for common per-individual-timing security validations or pre-firewall differences:*

After identifying the substantial and pervasive timeliness disparities described above, CGE&Y performed a re-analysis to determine whether the difference in resale and retail response times might be due

entirely to legitimate security validations performed on each individually-timed query. This re-analysis was performed by first determining the lowest individual query response time over all individual queries across all 94 test scripts. The result was that the lowest individual resale query response time was 2.5 seconds, and for retail queries it was 0.5 seconds. It was then considered that the maximum possible impact of a consistent per-query security validation check would be reflected in the difference between these two minimal individual query response times. Therefore, the resale total response times were adjusted by subtracting 2.0 seconds per individual query timing. The results were then analyzed as above, resulting in the following tables and graphs:

Scenario	Plot Symbol	Bus or Res	Order Type	Features	Service	Time	resale Total Adj response Time	retail Total response Time	effect	ratio	std. d. / eq. t.	delta	t	crit. t	p value
1	A	RES	CHNG	Y	POTS	8	18.63	6.75	0.75	2.12	0.27	2.73	7.71	1.89	0.0001
2	B	RES	CHNG	N	POTS	6	23.17	7.50	0.95	2.59	0.42	2.25	5.52	2.02	0.0013
3	C	RES	NEW	N	POTS	6	64.67	22.83	0.83	2.29	0.54	1.54	3.77	2.02	0.0065
4	D	RES	CONV	Y	POTS	8	23.88	14.75	0.27	1.30	0.50	0.53	1.51	1.89	0.0877
5	E	BUS	CHNG	Y	POTS	4	24.50	7.00	1.13	3.11	0.28	4.01	8.03	2.35	0.0020
6	F	BUS	CHNG	N	POTS	6	23.17	6.83	1.07	2.92	0.28	3.78	9.26	2.02	0.0001
7	G	BUS	NEW	Y	POTS	4	55.75	20.75	0.80	2.23	0.30	2.69	5.39	2.35	0.0063
8	H	BUS	NEW	N	POTS	5	66.50	22.10	0.91	2.49	0.47	1.92	4.30	2.13	0.0063
9	I	BUS	CONV	Y	POTS	12	22.58	14.08	0.32	1.37	0.34	0.93	3.21	1.80	0.0042
10	J	RES	NEW	N	ISDN	2	97.00	12.00	2.03	7.61	0.25	8.24	11.66	6.31	0.0272
11	K	BUS	CHNG	N	ISDN	4	29.25	2.50	2.29	9.84	1.08	2.12	4.24	2.35	0.0120
12	L	BUS	NEW	N	ISDN	2	93.00	21.00	1.49	4.43	0.60	2.50	3.53	6.31	0.0879
13	M	RES	CONV	N	ISDN	4	39.75	33.50	-0.08	0.93	0.30	-0.26	-0.52	2.35	0.6795
14	N	BUS	CHNG	Y	CNTX	3	18.67	5.67	0.79	2.19	1.22	0.64	1.12	2.92	0.1902
15	O	BUS	CHNG	N	CNTX	4	17.75	12.50	-0.07	0.93	0.98	-0.07	-0.14	2.35	0.5515
16	P	BUS	NEW	N	CNTX	4	56.75	19.50	0.86	2.36	0.17	5.05	10.10	2.35	0.0010
17	Q	BUS	CONV	N	CNTX	4	22.50	4.00	1.48	4.39	0.75	1.98	3.97	2.35	0.0143
18	R	BUS	NEW	N	PBX	2	52.50	7.50	1.87	6.51	0.52	3.59	5.07	6.31	0.0620
19	S	BUS	CONV	Y	PBX PVT	2	23.50	2.00	2.11	8.21	0.51	4.13	5.85	6.31	0.0539
20	T	BUS	CONV	N	LINE	4	25.25	6.50	0.98	2.66	0.42	2.34	4.68	2.35	0.0092

Figure 3.1.4.1f: Maximally Adjusted Phase II Total Response Time. By Scenario

2 secs subtracted from each individual Resale Query response time

Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail  
Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail

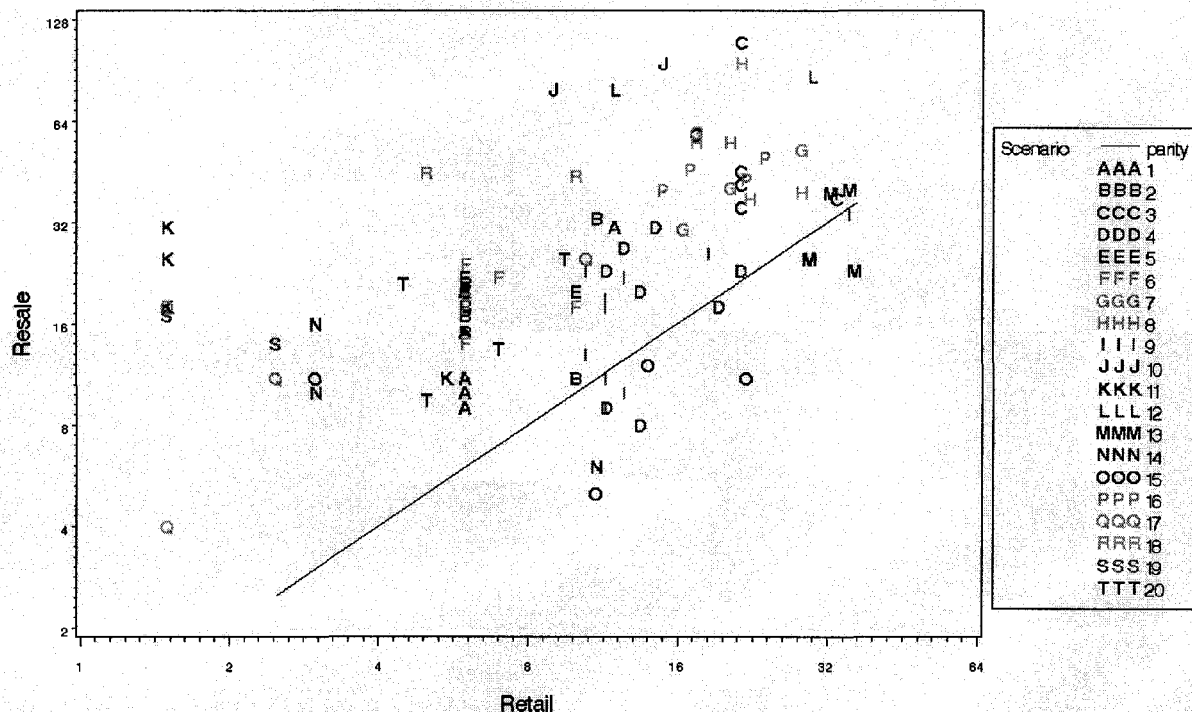
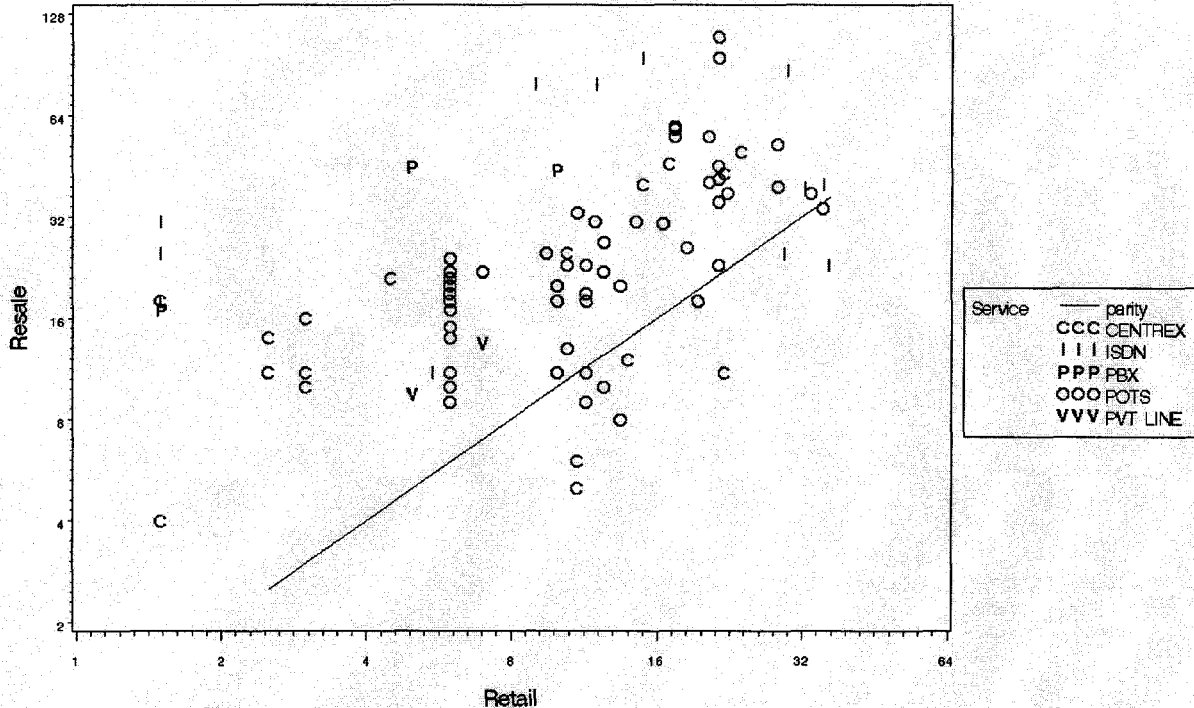


Figure 3.1.4.1g: Maximally Adjusted Phase II Total Response Time. By Service

2 secs subtracted from each individual Resale Query response time

Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail  
Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail



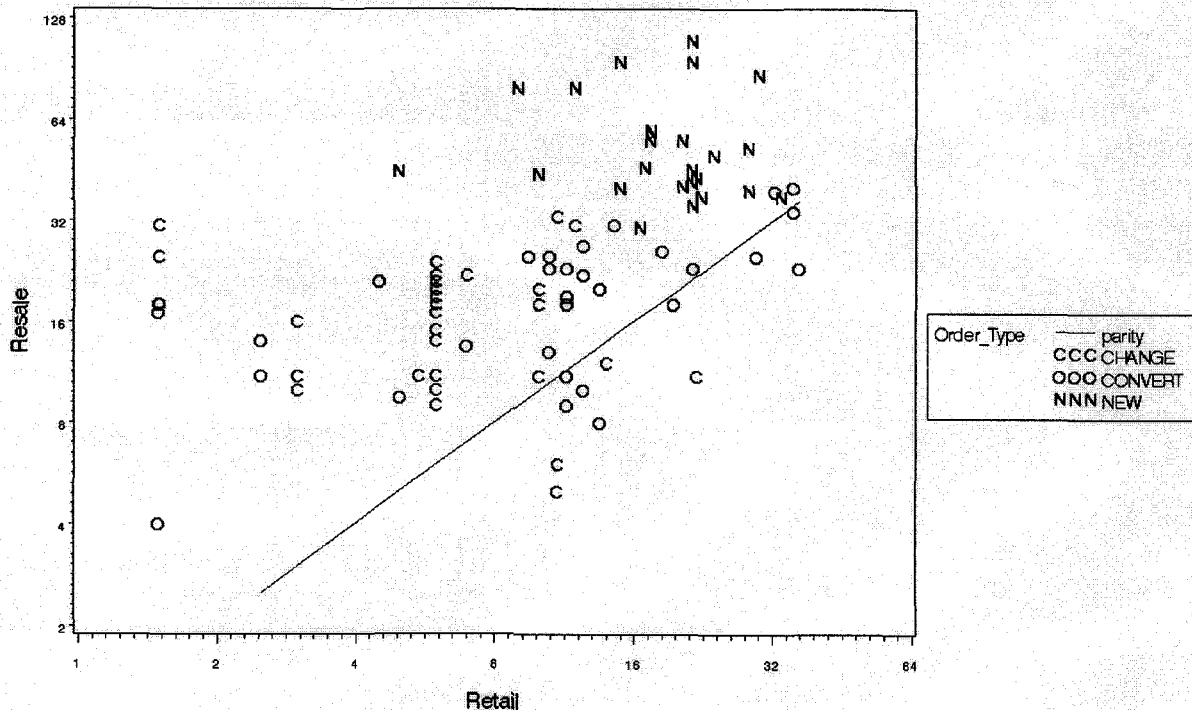
Bus or Res	Order Type	Features	Service	n	resale Total Adj. response Time	retail Total response Time	ratio	effect	std. d log t	delta	t	crit. t	p. value
BUS RES	CHNG CONV NEW	N Y	CNTX	94	28.23	12.78	2.29	0.83	0.75	1.10	10.68	1.66	0.0000
			CNTX	17	20.18	9.88	2.33	0.85	0.92	0.92	3.78	1.75	0.0008
			ISDN	12	46.00	17.50	3.69	1.31	1.22	1.07	3.70	1.80	0.0017
			PBX	3	35.33	5.50	7.66	2.04	0.49	4.13	7.15	2.92	0.0095
			POTS	60	27.16	13.25	1.96	0.67	0.48	1.41	10.92	1.67	0.0000
			PVT LINE	2	11.50	6.00	1.91	0.65	0.01	61.52	87.01	6.31	0.0037
				53	34.46	13.75	2.72	1.00	0.81	1.24	9.04	1.67	0.0000
				41	20.17	11.54	1.83	0.60	0.62	0.98	6.28	1.68	0.0000
				35	16.71	7.00	2.55	0.94	0.82	1.14	6.75	1.69	0.0000
				34	19.62	13.74	1.73	0.55	0.73	0.75	4.37	1.69	0.0001
				25	56.06	19.58	2.88	1.06	0.57	1.87	9.35	1.71	0.0000
				62	27.62	12.22	2.49	0.91	0.80	1.14	8.98	1.67	0.0000
				32	29.41	13.88	1.95	0.67	0.63	1.06	5.99	1.70	0.0000

Bus or Res	Order Type	Features	Service	n	Resale Total Adj. response Time	retail Total response Time	ratio	effect	std. d log t	delta	t	crit t	p_value
	CHNG		CNTX	7	10.14	9.57	1.32	0.28	1.07	<b>0.26</b>	0.68	1.94	<b>0.2603</b>
	CHNG		ISDN	4	21.25	2.50	9.54	2.25	1.06	<b>2.12</b>	4.23	2.35	<b>0.0120</b>
	CHNG		POTS	24	17.88	7.00	2.48	0.91	0.33	<b>2.72</b>	13.33	1.71	<b>0.0000</b>
	CONV		CNTX	6	15.50	3.83	4.54	1.51	0.58	<b>2.60</b>	6.37	2.02	<b>0.0007</b>
	CONV		ISDN	4	31.75	33.50	0.92	-0.08	0.30	<b>-0.28</b>	-0.55	2.35	<b>0.6901</b>
	CONV		PBX	1	17.00	1.50	11.33	2.43					
	CONV		POTS	21	19.38	14.12	1.34	0.29	0.42	<b>0.70</b>	3.19	1.72	<b>0.0023</b>
	CONV		PVT										
	CONV		LINE	2	11.50	6.00	1.91	0.65	0.01	<b>61.52</b>	87.01	6.31	<b>0.0037</b>
	NEW		CNTX	4	44.75	19.50	2.33	0.85	0.17	<b>5.05</b>	10.10	2.35	<b>0.0010</b>
	NEW		ISDN	4	85.00	16.50	5.71	1.74	0.48	<b>3.64</b>	7.27	2.35	<b>0.0027</b>
	NEW		PBX	2	44.50	7.50	6.29	1.84	0.51	<b>3.64</b>	5.14	6.31	<b>0.0612</b>
	NEW		POTS	15	52.90	22.03	2.29	0.83	0.43	<b>1.92</b>	7.43	1.76	<b>0.0000</b>

Figure 3.1.4.1h: Maximally Adjusted Phase II Total Response Time. By Order Type

2 secs subtracted from each individual Resale Query response time

Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail  
Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail



The re-analysis indicates that even after a maximal adjustment for security validations is made, resale response times are still 2.35 times as long as retail (on average 28 seconds versus 13 seconds) and this difference is highly statistically significant. This statistical significance is relatively pervasive across the scenarios examined, though not as pervasive as before re-analysis. Breaking out the scenarios by combinations of Service and Order Type shows that the only qualitative change in substantiality and significance resulting from the adjustment process is on the Centrex Change scenarios. These are now only barely substantially longer for resale than retail, therefore the difference is no longer statistically significant. In conclusion, extra time on each individual resale query due to security validations, differences in network transmission or any other factors which would equally lengthen every individual resale query, cannot be fully responsible for the observed disparity.

The substantial and statistically significant disparity which remains even after making the maximal possible adjustment for potential security validations and other consistent per-individual query differences between resale and retail pre-order query response timings is the subject of AZIWO1110.

#### **3.1.4.1.1 Network Comparison**

The disparity in processing times between resale and retail queries can be explained in part by the topology of the respective networks involved.

Qwest retail order management centers connect to Qwest's legacy OSS and associated databases via QwestNet (Qwest Intranet), a series of dedicated high-capacity trunks. CLECs with dedicated OSS access are connected to the same network, either through dedicated T-1, fractional T-1, or 56kbps dial-up. Therefore, with the exception of the dial-up method the medium by which connectivity is accomplished is identical. The Pseudo-CLEC in the Arizona 271 evaluation used dedicated T-1s to access Qwest's OSS.

The end-to-end topology of a CLEC's interface with Qwest OSS, however, is very different. CLECs must interface with Qwest's back-end systems and databases using IMA-GUI which Qwest classifies as "Mediated Access." The mediation requires additional system processes not found in the retail architecture, and results in additional time between transaction initiation and completion; however, these processes are generally accepted industry practice(s).

There are many systems and databases that make up the Qwest suite of OSS. Some have direct access interfaces, either with mediation or without, and some do not. The primary Qwest legacy databases that may impact response times with which both resale and retail representatives must interface to accomplish the various pre-order queries and order transactions are:

- Business Operations Support System (BOSS) – CSRs
- Customer Account Retrieval System (CARS) – CSRs
- Loop - or Line - Facility Assignment Control System (LFACS) – Facility information
- PREMises Information System (PREMIS) – Address validation, TN assignment, and Primary Interexchange Carrier/Local Primary Interexchange Carrier (PIC/LPIC) information
- Trunks Integrated Records Keeping System (TIRKS) – Database of central office and outside plant facilities.
- Appointment Scheduler

Some of the other systems and databases that do not impact response times but are integral to the service order process are:

- SOP
- Service Order Constructor

The majority of Qwest's legacy systems that handle pre-order and order activity are divided into three regions. As a result, there are three different versions of most of the above databases. These regional versions are identified as PREMIS East, PREMIS Central, and PREMIS West, and so on for the other databases. The BOSS database only exists in the Eastern and Central regions; its function is served by CARS for Washington and Oregon only. The Appointment Scheduler is a Qwest-wide system.

In general, Qwest order management centers are responsible for a specific geographic region. As a result, a retail service representative would most likely need to access only one set of systems to complete a given order. For instance, for an order in Qwest's central region, the representative would access BOSS Central, PREMIS Central, LFACS Central, etc.

Furthermore, the links between these centers and the databases they access are direct.

By comparison, all resale access to the same systems is funneled through one central location, regardless of the physical location of the CLEC service center. This is a sound architectural decision and by itself imposes minimal delay. The processing that occurs to transactions once they reach this central point, however, does cause transactional delays.

Figure 3.1.4.1.1a illustrates the resale schema; Figure 3.1.4.1.1b illustrates the retail schema. Please note that the diagram showing the resale architecture does not show the locations of any CLEC order management centers. It does, however, accurately depict the architecture and its centralized transaction brokering.

Figure 3.1.4.1.1a - Qwest Resale Major Facilities Mapping

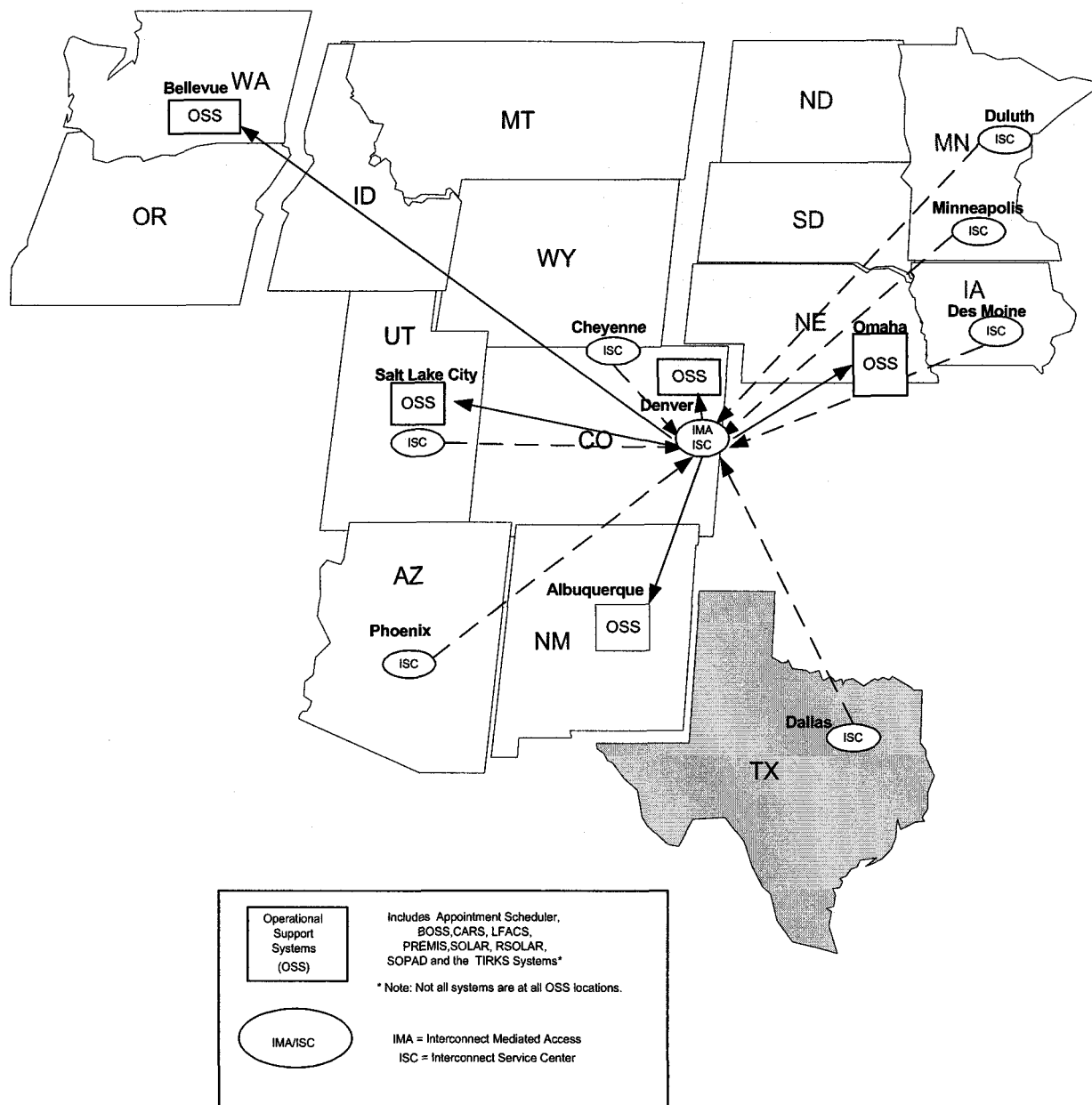
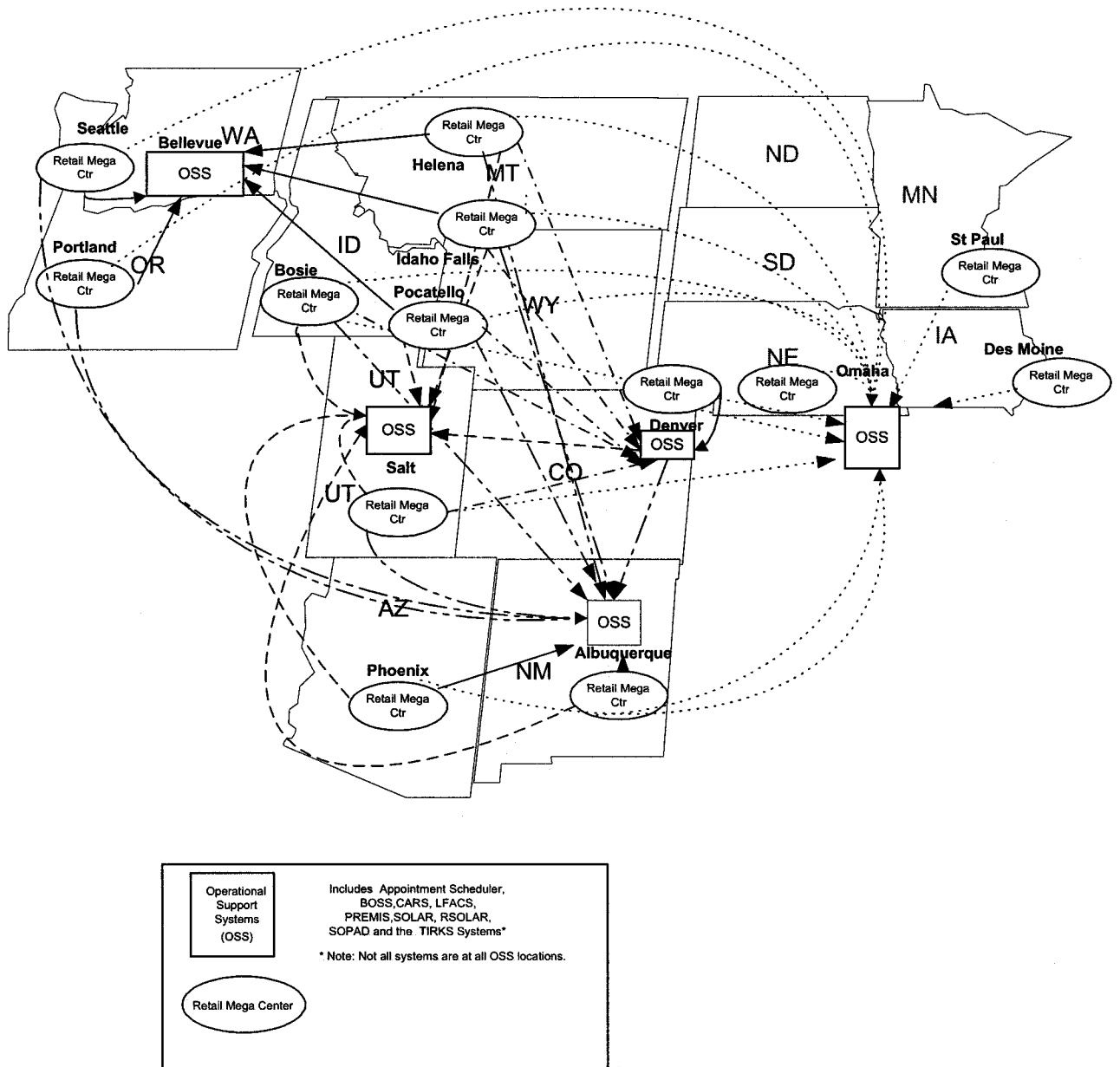


Figure 3.1.4.1.1b - Qwest Retail Major Facilities Mapping



### 3.1.4.1.2 Interface Comparison

As previously stated, the centralized nature of the resale architecture does not necessarily impose processing delays by itself. The mediation required by Qwest's "Interconnect Mediated Access," on the other hand, does have inherent delays. These delays include:

- **Query and Transaction Routing:** Because the legacy system resale interfaces (designed prior to the Telecommunications Act of 1996) do not directly access any particular system or database, the mediation process must decide what type of query is being run (e.g., address validation, service availability, CSR), and in what geographic area the end user is located in order to route the query to the correct database. These functions are performed by the following systems within Qwest:
  - Business Process Layer
  - Data Arbiter
  - Fetch 'N Stuff
- **Network and Database Security:** Because access to Mediated Access is effected through a single log-in by the CLEC at the Qwest firewall, the Qwest mediation process must pass along the CLEC's certificate to each system or database accessed so that authorization may be granted. Several such security transactions take place with each query. These transactions are transparent to the user, but impose a time delay. These security transactions protect both Qwest and the CLECs.
- **HTTP Routing:** Because the IMA-GUI system is web-based all transactions must be transferred via a web (HTTP) server on the Qwest side and received by a web server on the CLEC side. This imposes a minimal delay; however, it must be mentioned since there is no equivalent architecture on the retail side.

These delays can affect each individual query multiple times. The transaction routing and database considerations internal to Qwest's firewall may serve to explain part or all of the statistically significant and substantial disparity found in CGE&Y's pre-order query response timeliness analysis,

beyond the initial network access and initial once-per-query security validation allowed for in CGE&Y's maximal adjustment re-analysis.

While these causes may explain why there is a timeliness disparity, the disparity outlined in AZIWO1110 nonetheless exists, and it may be possible to design the transaction routing or reduce the number of multiple security validations each query experiences to considerably lessen the impact of this disparity.

### 3.1.4.2 Quantitative Measurements

For the purposes of this evaluation "field" is defined as a data input requirement, and "step" is defined as any progression in the overall process such as clicking a button, moving to a new screen, etc. CGE&Y compared the cumulative number of steps and fields required for resale and retail to perform similar transactions. These are summarized in the table that follows.

	Test Case Combinations	Average Fields		Average Steps	
		Resale	Retail	Resale	Retail
1	POTS RES CHNG w/Features	35	14	34	13
2	POTS RES CHNG w/o Features	29	13	29	13
3	POTS RES NEW w/o Features	54	32	54	27
4	POTS RES WINB w/Features	28	25	29	23
5	POTS BUS CHNG w/Features	32	14	31	14
6	POTS BUS CHNG w/o Features	40	13	32	13
7	POTS BUS NEW w/Features	56	34	53	32
8	POTS BUS NEW w/o Features	52	33	55	32
9	POTS BUS WINB w/Features	25	28	26	23
10	ISDN RES NEW w/o Features	52	117	50	29
11	ISDN BUS CHNG w/o Features	31	24	30	10
12	ISDN BUS NEW w/o Features	52	50	50	36
13	ISDN B/R WINB w/o Features	32	93	31	25
14	CNTX BUS CHNG w/Features	45	26	32	10
15	CNTX BUS CHNG w/o Features	47	27	31	11
16	CNTX BUS NEW w/o Features	57	63	48	30
17	CNTX BUS CONV w/o Features	27	49	26	17
18	PBX BUS NEW w/o Features	60	76	36	27
19	PBX BUS CONV w/Features	25	36	25	13
20	PVT BUS CONV w/o Features	46	60	37	37

The preceding table shows that test case combinations 1-8, 11, 12, 14 and 15 required more data entry fields for resale than retail and that test case combinations 9, 10, 13, and 16-20 required more data entry fields for retail than resale. The data are represented graphically in Figure 3.1.4.2a following.

The preceding table also shows that, with the exception of test case number 20, all test case combinations required more steps for resale than retail to complete similar transactions. The data are represented graphically in Figure 3.1.4.2b following.

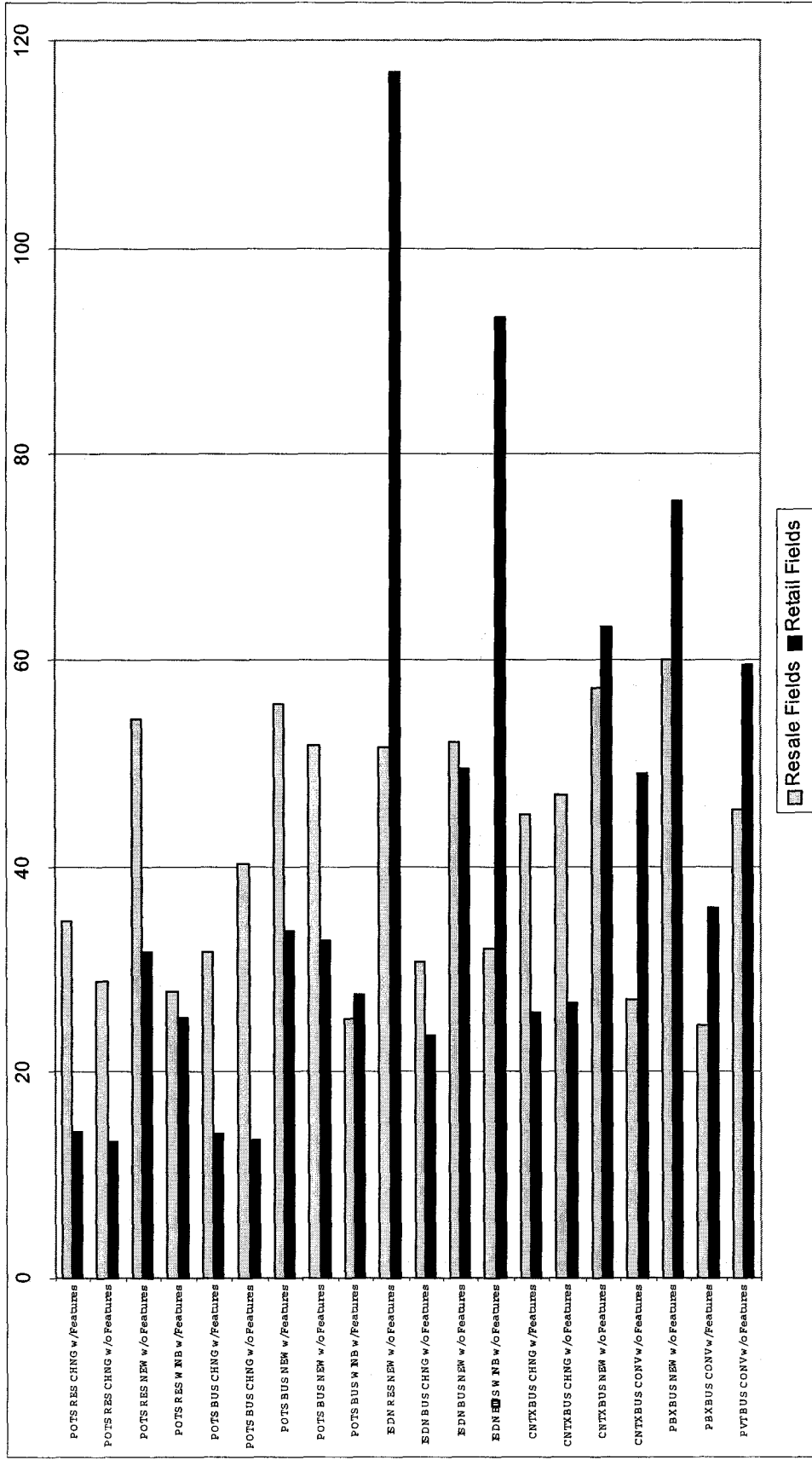


Figure 3.1.4.2a – Field Comparison

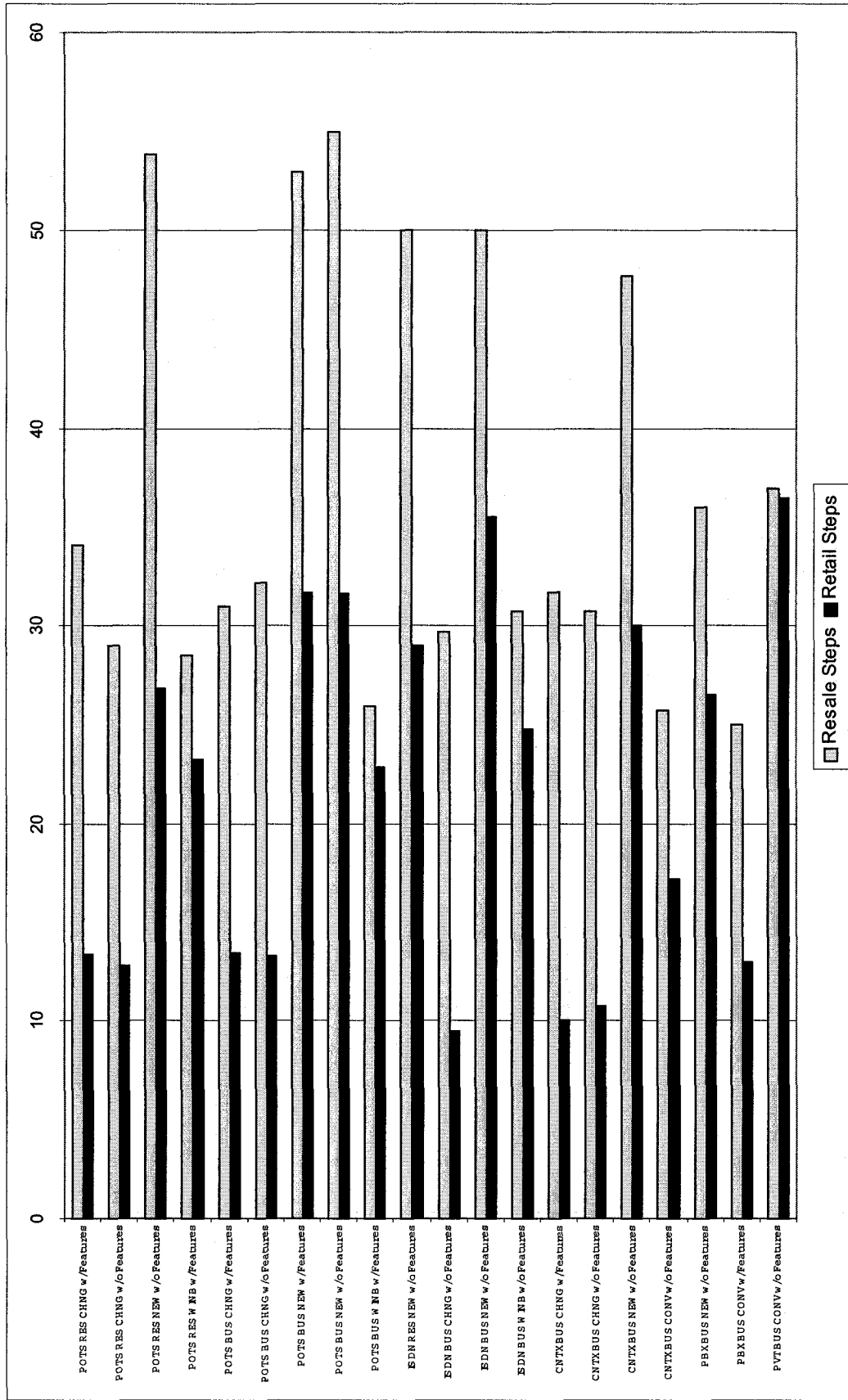


Figure 3.1.4.2b – Step Comparison

### 3.1.4.3 Qualitative Measurements

Section 5.2 of the MTP states that the RPE "...is qualitative in that it compares the information that a Qwest representative handling a customer can obtain compared to that which a CLEC representative can obtain, in terms of equivalency and accuracy. This includes not only standard pre-order and ordering functionality, but also other information needed to handle customers, such as: order status, escalations, and obtaining preferential or vanity numbers."

CGE&Y compared the quantity and quality of information retrieved by resale and retail systems in pre-order transactions. The focus of the evaluation was whether both were able to retrieve equivalent information from Qwest's OSS, such as similar appointment times, requested TN's, etc.

The evaluation showed that the quality and quantity of information obtained through pre-order queries was substantially the same as that obtained by Qwest through similar queries, and that the overall experience in submitting an order was also substantially the same for both.

The results of this evaluation are further summarized in the following table:

TSD Section 4.1 Question	Objective Satisfied?	Comments
1) Does the Pseudo-CLEC service representative experience substantially the same likelihood that the order's original due date, reserved TN and selected features will remain unchanged through receipt of FOC versus that which is experienced by the Qwest service representative?	Y	The resale and retail test scripts experienced no unasked-for changes to an order's original due date, reserved TN or selected features through acceptance by the SOP (retail), and through receipt of a FOC (resale). NOTE: Per Section 5.2 of the MTP, "...once the order has been submitted, it is only necessary to run the Retail Parity Evaluation through the ordering processes or through submission of a trouble report.

TSD Section 4.1 Question	Objective Satisfied?	Comments
		Consequently, the Retail Parity Evaluation activities will be cancelled in the SOP."
2) Is the time and effort to perform pre-order queries substantially the same for Pseudo-CLEC and Qwest service representatives?	N	Substantial differences were found in both the timings and the numbers of fields and steps required for the various queries between resale and retail. Detailed explanations of these differences can be found in Sections 3.1.4.1 and 3.1.4.2 of this report. (AZIWO1110 – timings; AZIWO1111 – fields and steps)
3) Is the level of pre-order to order integration substantially the same for the Pseudo-CLEC, when using the IMA-GUI, and Qwest service representatives?	N	The IMA-GUI pre-order-to-order integration for POTS allows the resale service representative to retrieve pre-order responses via pull-downs in the order generation tabs. The retail systems do not separate pre-order and order functionality for POTS service requests. While this does not provide parity for pre-order-to-order integration, this functionality does allow creation of the resale order without re-keying the pre-order data.  For complex services, however, the reverse is true. The retail systems require multiple entries to be made in various systems. IMA-GUI allows resale pre-order responses to be retrieved via pull-downs in the order

TSD Section 4.1 Question	Objective Satisfied?	Comments
		generation tabs. Neither retail nor resale complex services are flow through eligible.
4) Is the data on the screens presented to the Pseudo-CLEC service representative, by the IMA-GUI, substantially the same as the data presented to the Qwest service representative?	Y	Resale pre-order query response data were substantially the same as retail in content. The format of the responses, due mostly to systems design considerations, was different in most instances. The responses returned were clear, easily interpreted, and specific to the query transaction.
5) For service to be installed in the same serving area, are substantially the same reported facilities available for the Qwest service representative and the Pseudo-CLEC service representative?	Y	Resale Facility Availability queries were found to produce substantially the same results as retail queries conducted during the same timeframe for the same geographic area.
6) Is the procedure used to reserve large blocks of TNs substantially the same for both a Pseudo-CLEC service representative and a Qwest service representative?	Y	The procedure to reserve large blocks of TNs required a manual process for both resale and retail for the same geographic area.
7) For service to be installed in the same serving area, are substantially the same due date intervals experienced by the Qwest service representative and the Pseudo-CLEC service representative?	Y	Resale Appointment Scheduling queries were found to produce substantially the same results as retail queries conducted during the same timeframe.
8) Is substantially the same opportunity provided to the Pseudo-CLEC service	Y	An Expedite field is available on the LSR form for the resale representative to use to

TSD Section 4.1 Question	Objective Satisfied?	Comments
representative and the Qwest service representative to expedite due dates?		indicate that an order needs to be expedited, but this must be accompanied by a telephone call to the Interconnection Service Center (ISC). The retail representative must also make an internal phone call to expedite an order.
9) Is the procedure to obtain and/or reserve a "vanity" TN substantially the same for both a Pseudo-CLEC service representative and a Qwest service representative?	N	IMA-GUI does not provide the functionality to request a specific phone number. The resale representative must call Qwest in this situation.  The retail system allows the representative to request a specific number, and if that number is not available it will present a list of alternatives. (AZIWO1112)
10) Is the ability to make a change on a pending order that requires dispatch substantially the same for both a Pseudo-CLEC service representative and for a Qwest service representative?	Y	Both the resale and retail systems provide the ability to make a change on a pending order that requires dispatch.
11) Is substantially the same ability provided to both the Pseudo-CLEC service representative and the Qwest service representative to query status of a pending service order?	Y	Both the resale and retail systems provide the ability to check the status of an order at any time through order completion.
12) For "working left-in" situations, does IMA-GUI provide the Pseudo-CLEC service representative substantially the same status information as is provided	Y	Resale Facility Availability queries were found to produce substantially the same results as retail queries conducted during the same timeframe. "Working left-in" lines were

TSD Section 4.1 Question	Objective Satisfied?	Comments
to the Qwest service representative?		so designated in all cases.
13) Are the hours of system availability substantially the same for Pseudo-CLEC service representatives and for Qwest service representatives?	Y	System hours of availability are substantially the same for resale and retail.
14) Are the edit and error checking capabilities available to CLECs using the IMA-GUI interface to create orders substantially the same to the capabilities of a Qwest customer service representative using the retail interfaces?	Y	Both resale and retail systems provide error checking and responses to indicate the errors.

The following MTP and TSD exit criteria were met for the IMA-GUI pre-order/order test:

Criterion	Completed
All completed Retail Parity test scripts were processed, collected and retained by CGE&Y.	✓
The collected data were analyzed by CGE&Y.	✓
The findings from CGE&Y's analysis were documented in the RPE Report.	✓
Identified interface and system errors were resolved via the Master Issues Log Process and/or the IWO process.	✓
All expected results, including issue and IWO resolutions, were achieved.	In progress

## 3.2 IMA-GUI Maintenance and Repair

### 3.2.1 Introduction

The IMA-GUI Maintenance and Repair evaluation was structured to evaluate the mechanized M&R capability available to a CLEC representative (resale) using Qwest OSS interfaces and that available to a Qwest representative (retail) using the equivalent internal Qwest OSS interfaces when performing similar activity. The evaluation compared a CLEC's ability to perform the M&R transactions on an end-user's line or circuit with the Qwest retail equivalent transactions.

Note: Subsequent to completion of this evaluation, the IMA-GUI M&R has been replaced with the Customer Electronic Maintenance and Repair (CEMR) system.

### 3.2.2 Scope

The test included the following transactions for evaluation:

Transactions	M&R
Open Trouble Report	X
Retrieve Circuit/Trouble History	X
Perform MLT	X
Status Trouble	X

The evaluation methods for the M&R transactions are explained below:

- ❑ Open Trouble Report: query response times, quality of information provided, and number of steps required to complete the query were observed, documented, and compared between Qwest retail interfaces and IMA-GUI
- ❑ Retrieve Circuit/Trouble History: query response times, quality of information provided, and number of steps required to complete the query were observed, documented, and compared between Qwest retail interfaces and IMA-GUI
- ❑ Perform MLT: query response times, quality of information provided, and number of steps required to complete the query were observed, documented, and compared between Qwest retail interfaces and IMA-GUI
- ❑ Status Trouble: query response times, quality of information provided, and number of steps required to complete the query were observed, documented, and compared between Qwest retail interfaces and IMA-GUI

### 3.2.3 Process

Test cases for M&R on which qualitative, quantitative and timeliness measures could be collected were taken from a subset of the test scenarios identified in Appendix A of the MTP. All M&R test cases were executed during Phase I.

External constraints were imposed on the total number of RPE iterations. In order to have a statistical design sufficiently powerful to detect substantial differences, and still remain within the total sample size constraint, it was decided to focus the sufficiently powered statistical evaluation on the pre-order queries. As a result, the analysis of M&R query response timeliness is insufficiently powered to detect moderate overall differences or even large differences in subgroups of the total M&R RPE sample. Rather, the focus of this timeliness analysis is only directional and there is therefore no need for a phased approach in the M&R RPE. Nonetheless, a limited statistical analysis on the data collected is provided herein.

Paired resale and retail test scripts<sup>12</sup> were developed from the test cases. Each resale test script had a corresponding retail test script, enabling a comparison between IMA-GUI and the equivalent retail systems. Each paired test script was given the same case description. The case descriptions included:

- addresses in the same wire centers
- the same number of lines
- the same account type (Residence or Business)
- the same service type (e.g., POTS, ISDN-BRI)

Each test script executed only those M&R transactions applicable to the test case description.

In order to control the execution of the RPE test, each script contained step-by-step instructions to the service representative for data entry, collection of screen prints, and performing and collecting requested transaction timings. CGE&Y monitored, on-site, the retail service representative and the resale service representative during the execution of each test script. The timing of paired test script execution was synchronized so that both the resale and retail activities required by the scripts occurred during the same morning/afternoon hours of the same business day.

Qualitative measures were used where an exact means of comparison was not possible. Quantitative measures were used where "apples-to-apples" comparisons of data elements were possible. Timeliness measures were used where measurable elapsed timeframes were available. Measures included query

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<sup>12</sup> CGE&Y Archive File: RPE #9 - P-I M&R Test Scripts

response times, quality of information provided, and number of fields and steps required to complete the transaction.

All three measures were applied to applicable M&R transactions performed during paired resale and retail test script execution.

The following MTP and TSD entrance criteria were met prior to commencing the IMA-GUI M&R test:

Criterion	Completed
The Pseudo-CLEC received Readiness Certification from Qwest.	✓
Qwest and the Pseudo-CLEC interfaces and systems (IMA-GUI and retail equivalent) were operational and stable.	✓
CGE&Y was granted access to the appropriate Qwest site(s) to conduct the on-site testing and monitoring. This included the creation of security badges and access to facilities and equipment that would permit controlled observation of Qwest service representative M&R activities.	✓
CGE&Y was granted access to the appropriate Pseudo-CLEC site(s) to conduct the on-site testing and monitoring. This included the creation of security badges to secure locations and access to private test performance monitoring facilities and equipment whenever available.	✓
A Daily Test Order Monitoring Schedule was created by CGE&Y.	✓
CGE&Y members responsible for on-site monitoring were provided with on-site telephone access for use in communication with other CGE&Y members.	✓
Retail Parity test scripts were created by CGE&Y.	✓
The Pseudo-CLEC's ability to collect data during performance of CGE&Y provided test scripts was verified.	N/A*

\*CGE&Y Test Monitor collected data

Criterion	Completed
CGE&Y's ability to access test data collected by the Pseudo-CLEC during performance of CGE&Y provided test scripts was verified.	N/A*
Valid account data were received from Qwest.	✓
Test data elements that define the Pseudo-CLEC for purposes of permitting interface activities with Qwest were populated in the necessary databases.	✓
The number of test iterations was identified.	✓
Test cases and iterations that were to be used to perform the evaluations were completed and available.	✓

### 3.2.4 Results

Following is a table presenting the raw data for the 18 matched resale and retail individual M&R queries performed as part of the RPE:

Market	Query	Lines	Prod	Resale				Retail			
				Fields	Steps	Seconds	Timings	Fields	Steps	Seconds	Timings
RES	MLT	1	POTS	3	6	205	1	3	7	3	1
RES	Tkt	1	POTS	12	10	5	2	3	13	9	1
RES	History	1	POTS	1	4	47	1	0	3	11	1
RES	Status	1	POTS	3	4	4	1	1	5	3	1
BUS	MLT	1	POTS	4	7	3	1	3	7	1	1
BUS	Tkt	1	POTS	11	6	1	1	3	14	2	1
BUS	History	1	POTS	1	4	25	1	0	3	1	1
BUS	Status	1	POTS	3	4	4	1	1	5	1	1
BUS	Tkt	9	CTX	11	6	2	2	3	15	2	1
BUS	Status	9	CTX	3	4	4	1	1	5	3	1
BUS	Tkt	5	PBX	11	6	1	1	3	11	63	1
BUS	Status	5	PBX	3	4	3	1	1	5	3	1
RES	Tkt	1	ISDN	9	8	1	1	8	7	1	1
RES	Status	1	ISDN	3	4	4	1	2	6	7	2
BUS	Tkt	1	ISDN	9	8	3	2	10	7	3	1
BUS	Status	1	ISDN	3	4	4	1	2	6	7	2
BUS	Tkt	1	PvtLin e	9	8	2	1	7	7	3	1
BUS	Status	1	PvtLin e	3	4	3	1	2	6	8	2

\*CGE&Y Test Monitor collected data

Version 2.0

46

This Interim Report may be used only as authorized by the Commission. This Interim Report is subject to further revision by CGE&Y and shall not be deemed final until CGE&Y issues its Final Report in this proceeding and that Final Report is released by the Commission.

The above table seems to indicate that the number of fields and steps is approximately the same or fewer for resale than for retail, except for the number of fields required to create a ticket (work order) for non-designed services (POTS, CTX, PBX), where 11 or 12 fields need to be entered for resale as compared to 3 for retail.

As described more fully in Section 3.1.4.1, the individual recorded timings used to compile the above table are on average a half second shorter than the true response time. In the analysis below, this is corrected for by adding a half-second multiplied by the number of timings to each of the above response times.

Unlike pre-order and order queries, M&R queries do not have to be processed by the Business Process Layer and Fetch N' Stuff ((they are forwarded directly from the MEDIACC gateway for processing by Loop Maintenance Operations System (LMOS) and Work Force Administration (WFA))). There is much more similarity between the resale and retail M&R processes involved on an individual query basis than for pre-order queries. This enables an analysis based on individual M&R query response times. The following table indicates the timeliness results main effects for the M&R queries scenarios examined in Phase I:

Prod	Market	Query	Lines	n	resale	retail	ratio	effect	std. d.	delta	t	crit. t	p. value
CNTX ISDN PBX POTS Pvt Line	BUS RES	History MLT Status Tkt	1	18	18.42	7.86	1.24	0.22	1.61	0.14	0.58	1.74	0.2857
			14	14	22.79	4.89	1.68	0.52	1.44	0.36	1.34	1.77	0.1009
			5	2	2.50	33.50	0.15	-1.87	2.65	-0.71	-1.00	6.31	0.7500
			9	2	3.75	3.00	1.24	0.22	0.05	4.44	6.29	6.31	0.0502
			2	2	36.50	6.50	8.38	2.13	1.00	2.12	3.01	6.31	0.1023
			2	2	104.50	2.50	11.70	2.46	2.28	1.08	1.53	6.31	0.1847
			7	7	4.21	5.29	0.93	-0.07	0.69	-0.10	-0.27	1.94	0.6022
			7	7	2.86	12.36	0.51	-0.68	1.38	-0.49	-1.30	1.94	0.8786
			12	12	5.17	8.67	0.94	-0.06	1.53	-0.04	-0.14	1.80	0.5563
			6	6	44.92	6.25	2.19	0.78	1.76	0.45	1.09	2.02	0.1625
			2	2	3.75	3.00	1.24	0.22	0.05	4.44	6.29	6.31	0.0502
			4	4	3.63	5.25	0.78	-0.25	0.37	-0.68	-1.36	2.35	0.8661
			2	2	2.50	33.50	0.15	-1.87	2.65	-0.71	-1.00	6.31	0.7500
			8	8	37.31	4.38	3.30	1.19	1.59	0.75	2.12	1.89	0.0356
			2	2	3.00	6.25	0.53	-0.64	0.43	-1.49	-2.11	6.31	0.8589

The first row indicates that over all of the 18 individual M&R queries conducted in Phase I, without regard to their unique factors, resale response times were about 24% longer than retail response times.<sup>13</sup> This difference is neither substantial nor statistically significant per the TSD Statistical Approach.

A generally similar pattern is observed for most of the main effect rows.

The major exception to this is consideration of all eight individual POTS queries. These results (second to the last row in the above table) indicate that response to resale M&R queries on POTS services takes about 3.3 times as long as to retail M&R queries on POTS services. The observed difference is both substantial and statistically significant. However, as it is based on only eight observations, which are actually on only two M&R ticket scenarios,<sup>14</sup> and is not part of a consistent pattern across the very limited number of M&R queries, this should not be viewed as evidence of disparity.

The sample size is also much too small to consider Service – Query combinations, as each of these has only one or two queries.

For illustrative purposes only, the M&R resale and retail query response times are presented by Service and Query Type in Figure 3.2.4a and Figure 3.2.4b:

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<sup>13</sup> Although the average response times seem to indicate a higher ratio, 18 seconds versus 8, this is misleading because the difference in averages has been overly influenced by the single MLT POTS RES result of 205.5 seconds for resale versus 3.5 seconds for retail. As statistical comparisons on timeliness measures are performed on transformed values to stabilize the variance and symmetrize the distribution, it is more appropriate to look at the column labeled “effect,” which for interpretive purposes can be exponentiated to form the ratio column. This is the antilog of the average of the differences in log-times, which is not the same as the ratio of the average difference in times, but is a more useful characterization of the timing differences.

<sup>14</sup> This violates the uncorrelated errors assumption required for the t-test, as the MLT and History were performed at about the same time, as were the Ticket submission and Status.

Figure 3.2.4a: M&R Transaction Response Time — Resale vs Retail by Service

Each point is a test case result: horizontal axis value is the retail result, vertical axis value is Resale result

Diagonal Line indicates parity performance

Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail

Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail

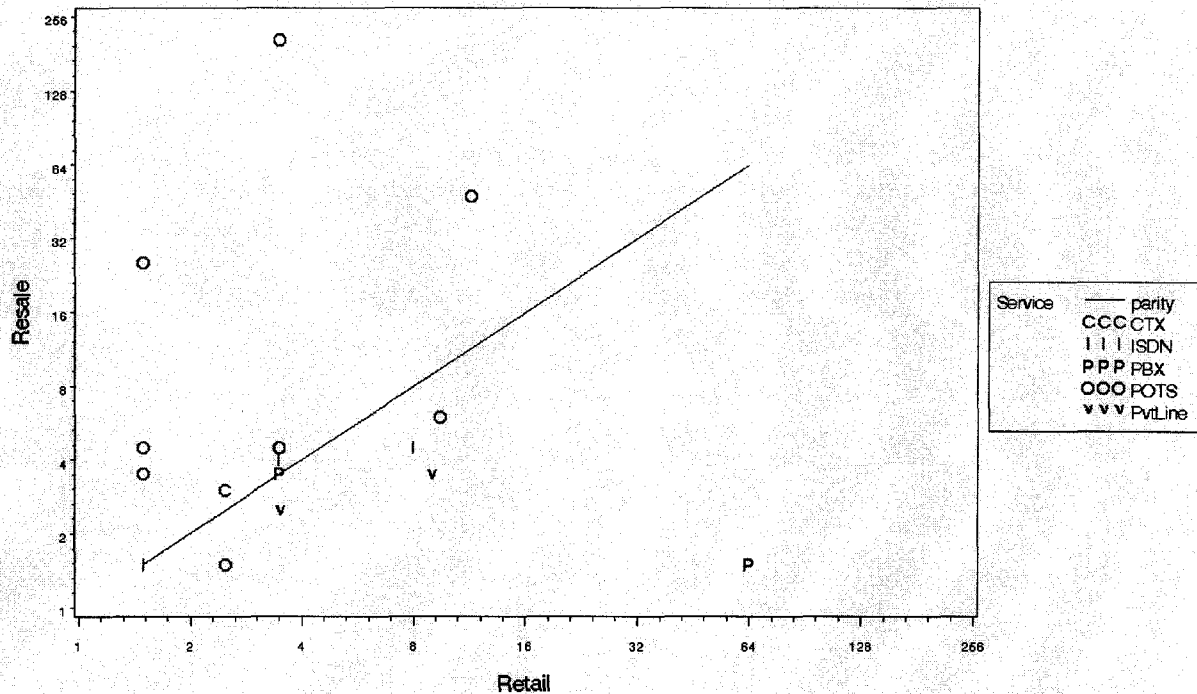


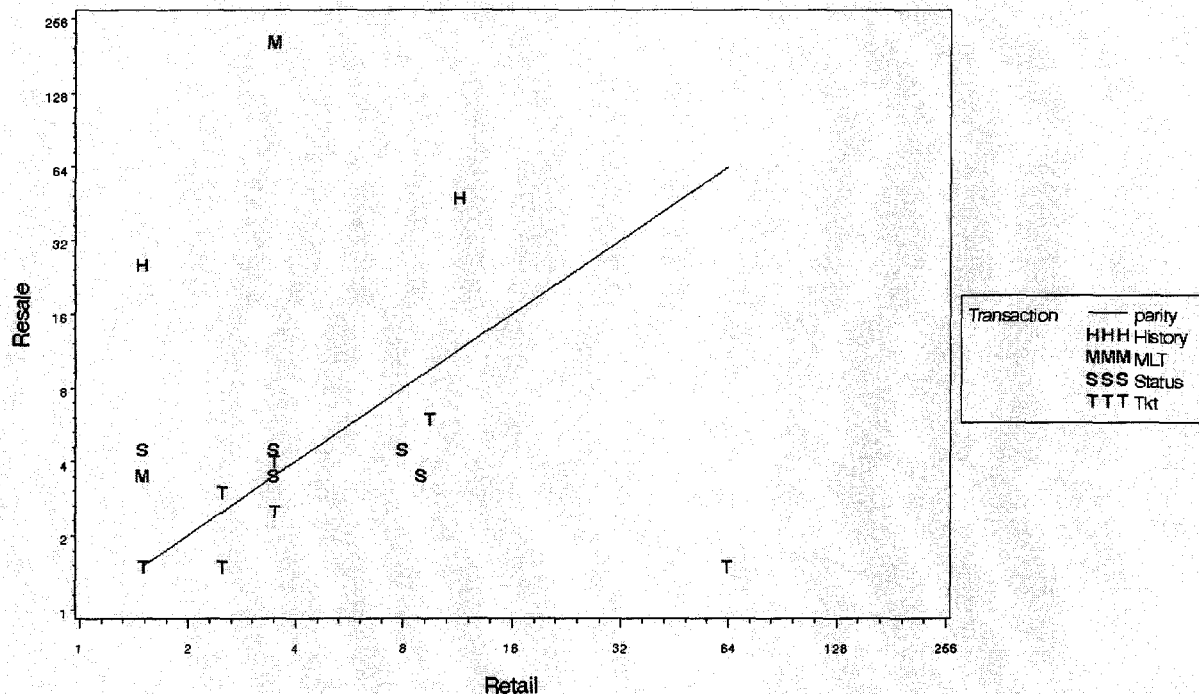
Figure 3.2.4b: M&amp;R Transaction Response Time — Resale vs Retail by Transaction Type

Each point is a test case result: horizontal axis value is the retail result, vertical axis value is Resale result

Diagonal Line indicates parity performance

Points above and to the left of diagonal indicate test cases with longer Resale response times than Retail

Points below and to the right of diagonal indicate test cases with shorter Resale response times than Retail



As is apparent from the above table and Figure 3.2.4b, creating a ticket and getting its status doesn't take longer for resale than retail. As stated above in this section, M&R transactions are accepted by the MEDIACC gateway and are forwarded to LMOS and WFA without having to go through the Business Process Layer and Fetch N' Stuff as pre-order and order transactions do. However, performing an MLT and obtaining a ticket's history appears to take substantially longer (about 10 times as long<sup>15</sup>).

As the minimum individual M&R query response time is the same, 1.5 seconds, for both resale and retail, there is no basis to conclude that there may be extra

<sup>15</sup> Based on the ratio column in the transaction type table. Although the average response times seem to indicate a higher ratio, 18 seconds versus 8, this is misleading because the difference in averages has been overly influenced by the single MLT POTS RES result of 205.5 seconds for resale versus 3.5 seconds for retail. As statistical comparisons on timeliness measures are performed on transformed values to stabilize the variance and symmetrize the distribution, it is more appropriate to look at the column labeled "effect," which for interpretive purposes can be exponentiated to form the ratio column. This is the antilog of the average of the differences in log-times, which is not the same as the ratio of the average difference in times, but is a more useful characterization of the timing differences.

resale security validation time consistently across all query types and services, so no maximal adjustment re-analysis was performed for M&R.

The M&R scenarios were performed primarily to determine that the response to these queries provided comparable information to both resale and retail. CGE&Y was able to verify that the functionality provided to both resale and retail was substantially the same. For example, the functions necessary for resale to open a trouble ticket were the same for retail. Comparable MLT results were received for both resale and retail. Upon request, trouble history was available to both resale and retail along with trouble ticket status. The timeliness data gathered directionally supports parity for the queries of issuing a ticket and obtaining its status. The functionality test will address M&R test scenarios in quantity in addition to actual trouble conditions experienced by the Pseudo CLEC's end-user customers. Performance measurement data specific to M&R will be gathered, calculated, analyzed and reported in the functionality section of the Final Report.

The number of steps and fields over all the transactions and services tested is similar or fewer for resale than retail, except for issuing a ticket on non-designed services, where 11-12 fields are required for resale versus 3 for retail.

The following MTP and TSD exit criteria were met for the IMA-GUI M&R test:

Criterion	Completed
All completed Retail Parity test scripts were processed, collected and retained by the CGE&Y.	✓
The collected data were analyzed by CGE&Y.	✓
The findings from CGE&Y's analysis were documented in the RPE Report.	✓
Identified interface and system errors were resolved via the Master Issues Log Process and/or the IWO process.	✓
All expected results, including issue and IWO resolutions, were achieved.	✓

### 3.3 EDI Pre-Order/Order

#### 3.3.1 Introduction

The EDI pre-order/order evaluation was structured to evaluate the mechanized service request capability available to a CLEC representative (resale) using

Qwest OSS interfaces and that available to a Qwest representative (retail) using the equivalent internal Qwest OSS interfaces when performing similar activity. The evaluation compared a CLEC's ability to process pre-order queries and submit LSRs with the Qwest retail equivalent transactions.

### 3.3.2 Scope

The test included the following transactions for evaluation:

Transactions	Order Type		
	New	Change	Conv / Win Back
Address Validation	X	X	X
CSR Validation		X	X
TN Selection	X		
Service Availability	X	X	
Facility Availability	X		
Appointment Scheduler	X	X	
Create and Submit LSR	X	X	X

The evaluation methods for the pre-order/order transactions are explained below:

- ☐ Address Validation: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EDI
- ☐ CSR Validation: quality of information provided via EDI was observed and documented
- ☐ TN Selection: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EDI
- ☐ Service Availability: quality of information provided via EDI was observed and documented
- ☐ Facility Availability: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EDI
- ☐ Appointment Scheduler: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EDI
- ☐ Create and Submit LSR: the extent of pre-order to order integration provided for submission of an LSR was compared between EDI and the functional retail equivalents

### 3.3.3 Process

Test cases for pre-order and order on which qualitative measures could be collected were taken from a subset of the test scenarios identified in Appendix A of the MTP.

Paired resale and retail test scripts<sup>16</sup> were developed from the test cases. Each resale test script had a corresponding retail test script, enabling a comparison between the resale systems (EDI) and the equivalent retail systems. Each paired test script was given the same case description. The case descriptions included:

- addresses in the same wire centers
- the same number of lines
- the same account type (Residence or Business)
- the same service type (e.g., POTS, ISDN-BRI)
- the same service attributes (e.g., number of lines, features)
- the same activity (e.g., New Connect, Change, Conversion/Win back)

Each test script executed only those pre-order and order transactions applicable to the test case description.

In order to control the execution of the RPE test, each script contained step-by-step instructions to the service representative for data entry, collection of screen prints, and performing and collecting requested transaction timings. CGE&Y monitored the retail service representative and the resale service representative during the execution of each test script. The paired test script execution was synchronized so that both the resale and retail activities requested by the scripts occurred during the same morning/afternoon hours of the same business day.

Per Section 4.1 of the TSD, only qualitative and quantitative test measures were applied to EDI/EB-TA test script execution.

Per Section 4.5 of the TSD, captured input data were compared to ensure that both performed substantially the same queries and similarly compared the data that were returned for the query.

The following MTP and TSD entrance criteria were met prior to commencing the EDI pre-order/order evaluation:

Criterion	Completed
The Pseudo-CLEC received Readiness Certification from Qwest.	✓

<sup>16</sup> CGE&Y Archive File: RPE #10 - P-II EDI Test Scripts

Criterion	Completed
Qwest and the Pseudo-CLEC interfaces and systems (EDI and retail equivalent) were operational and stable.	✓
CGE&Y was granted access to the appropriate Qwest site(s) to conduct on-site testing and monitoring. This included the creation of security badges and access to facilities and equipment that would permit controlled observation of Qwest service representative pre-order and order activities.	✓
CGE&Y was granted access to the appropriate Pseudo-CLEC site(s) to conduct on-site testing and monitoring. This included the creation of security badges to secure locations and access to private test performance monitoring facilities and equipment whenever available.	✓
A Daily Test Order Monitoring Schedule was created by CGE&Y.	✓
CGE&Y members responsible for on-site monitoring were provided with on-site telephone access for use in communication with other CGE&Y members.	✓
Retail Parity test scripts were created by CGE&Y.	✓
The Pseudo-CLEC's ability to collect data during performance of CGE&Y provided test scripts was verified.	N/A*
CGE&Y's ability to access test data collected by the Pseudo-CLEC during performance of CGE&Y provided test scripts was verified.	N/A*
Valid account data were received from Qwest.	✓
Test data elements that define the Pseudo-CLEC for purposes of permitting interface activities with Qwest were populated in the necessary databases.	✓
The number of test iterations was identified.	✓
Test cases and iterations that were to be used to perform the	✓

\* CGE&Y Test Monitor collected data

Criterion	Completed
evaluations were completed and available.	

### 3.3.4 Results

Per Section 4.5 of the TSD, the comparative evaluation of data was limited to the number, type and quality of data elements returned (no timeliness measure was used for this evaluation).

CGE&Y compared the quality of information presented to both resale and retail pre-order and order transactions. The focus of the evaluation was to determine whether both resale and retail were able to retrieve equivalent information from Qwest's OSS, such as similar appointment times, requested TNs, etc.

The evaluation showed that the quality and quantity of information obtained through EDI pre-order queries was substantially the same as that obtained by Qwest through similar queries, and that the overall experience in submitting an order was also substantially the same for both.

The results of this evaluation are further summarized in the following table:

TSD Section 4.1 Question	Objective Satisfied?	Comments
1) Does the Pseudo-CLEC service representative experience substantially the same likelihood that the order's original due date, reserved TN and selected features will remain unchanged once it is accepted by the SOP, and through receipt of FOC for resale orders, versus that which is experienced by the Qwest service representative?	Y	<p>The resale and retail test scripts experienced no changes to an order's original due date, reserved TN or selected features through acceptance by the SOP (retail), and through receipt of a FOC (resale).</p> <p>NOTE: Per Section 5.2 of the MTP, "...once the order has been submitted, it is only necessary to run the Retail Parity Evaluation through the ordering processes or through submission of a trouble report. Consequently, the Retail Parity Evaluation activities will be cancelled in the SOP."</p>

TSD Section 4.1 Question	Objective Satisfied?	Comments
2) For service to be installed in the same serving area, are substantially the same reported facilities available for the Qwest service representative and the Pseudo-CLEC service representative?	Y	Resale Facility Availability queries were found to produce substantially the same results as retail queries conducted during the same timeframe and in the same geographic area.
3) Is the procedure used to reserve large blocks of TNs substantially the same for both a Pseudo-CLEC service representative and a Qwest service representative?	Y	The procedure to reserve large blocks of TNs required a manual process for both resale and retail for the same geographic area.
4) For service to be installed in the same serving area, are substantially the same due date intervals experienced by the Qwest service representative and the Pseudo-CLEC service representative?	Y	Resale Appointment Scheduling queries were found to produce substantially the same results as retail queries conducted during the same timeframe geographic area.
5) Is substantially the same opportunity provided to the Pseudo-CLEC service representative and the Qwest service representative to request extended due dates (due dates longer than thirty days into the future)?	Y	Test scripts were successfully conducted requesting due dates of 45 days from the date of order submission for both resale and retail.
6) Is substantially the same ability provided to both the Pseudo-CLEC service representative and the Qwest service representative to query status of a pending service order?	Y	Both the resale and retail systems provide the ability to check the status of an order at any time through order completion.
7) For "working left-in" situations, does EDI provide the Pseudo-CLEC service representative substantially the same status information as is provided to the Qwest service representative?	Y	Resale Facility Availability queries were found to produce substantially the same results as retail queries conducted during the same timeframe. "Working left-in" lines were so designated in all cases.
8) Are the hours of system availability substantially the same for Pseudo-CLEC service representatives and for Qwest service representatives?	Y	System hours of availability are substantially the same for resale and retail.

TSD Section 4.1 Question	Objective Satisfied?	Comments
9) Are the edit and error checking capabilities available to CLECs using the EDI interface to create orders substantially the same to the capabilities of a Qwest service representative using the retail interfaces?	Y	Both resale and retail systems provide error checking and responses to indicate the errors.

The following MTP and TSD exit criteria were met for the EDI pre-order/order evaluation:

Criterion	Completed
All completed Retail Parity test scripts were processed, collected and retained by CGE&Y.	✓
The collected data were analyzed by CGE&Y.	✓
The findings from CGE&Y's analysis were documented in the RPE Report.	✓
Identified interface and system errors were resolved via the Master Issues Log Process and/or the IWO process.	✓
All expected results, including issue and IWO resolutions, were achieved	✓

### 3.4 EB-TA Maintenance and Repair

#### 3.4.1 Introduction

The EB-TA Maintenance and Repair evaluation was structured to evaluate the mechanized M&R capability available to a CLEC representative (resale) using Qwest OSS interfaces and that available to a Qwest representative (retail) using the equivalent internal Qwest OSS interfaces when performing similar activity. The evaluation compared a CLEC's ability to perform the M&R transactions on an end-user's line or circuit with the Qwest retail equivalent transactions. For the purposes of the EB-TA M&R test, "Pseudo-CLEC" refers to the participating CLEC.

### 3.4.2 Scope

The test included the following transactions for evaluation:

Transactions	M&R
Open Trouble Report	X
Retrieve Circuit/Trouble History	X
Perform MLT	X
Status Trouble	X

The evaluation methods for the EB-TA M&R transactions are explained below:

- ☐ Open Trouble Report: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EB-TA
- ☐ Retrieve Circuit/Trouble History: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EB-TA
- ☐ Perform MLT: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EB-TA
- ☐ Status Trouble: quality of information provided was observed, documented, and compared between Qwest retail interfaces and EB-TA

### 3.4.3 Process

Paired resale and retail test scripts<sup>17</sup> were developed using Friendly test lines. Each resale test script had a corresponding retail test script, enabling a comparison between EB-TA and the equivalent retail systems. Each paired test script was given the same case description. The case descriptions included:

- End-user address
- TN on which test was to be run
- Action to be accomplished (e.g., open trouble ticket, perform MLT)

In order to control the execution of the EB-TA M&R test, each script contained step-by-step instructions to the service representative for data entry and the collection of screen prints. CGE&Y monitored, on-site, the retail service representative and the resale service representative during the execution of each test script. The timing of paired test script execution was synchronized so that both the resale and retail activities requested by the scripts occurred during the same morning/afternoon hours of the same business day.

<sup>17</sup> CGE&Y Archive File: RPE #11 - P-II EB-TA Test Scripts

Per Section 4.1 of the TSD, only qualitative and quantitative test measures were applied to EDI/EB-TA test script execution.

Per Section 4.5 of the TSD, captured input data were compared to ensure that both performed substantially the same queries and similarly compared the data that were returned for the query.

The following MTP and TSD entrance criteria were met prior to commencing the EB-TA M&R test:

Criterion	Completed
The Pseudo-CLEC received Readiness Certification from Qwest.	N/A
Qwest and the Pseudo-CLEC interfaces and systems (EB-TA and retail equivalent) were operational and stable.	✓
CGE&Y was granted access to the appropriate Qwest site(s) to conduct the on-site testing and monitoring. This included the creation of security badges and access to facilities and equipment that would permit controlled observation of Qwest service representative M&R activities.	✓
CGE&Y was granted access to the appropriate Pseudo-CLEC site(s) to conduct the on-site testing and monitoring. This included the creation of security badges to secure locations and access to private test performance monitoring facilities and equipment whenever available.	✓
A Daily Test Order Monitoring Schedule was created by CGE&Y.	✓
CGE&Y members responsible for on-site monitoring were provided with on-site telephone access for use in communication with other CGE&Y members.	✓
Retail Parity test scripts were created by CGE&Y.	✓
The Pseudo-CLEC's ability to collect data during performance of CGE&Y provided test scripts was verified.	N/A*

\* CGE&Y Test Monitor collected data

Criterion	Completed
CGE&Y's ability to access test data collected by the Pseudo-CLEC during performance of CGE&Y provided test scripts was verified.	N/A *
Valid account data were received from Qwest.	✓
Test data elements that define the Pseudo-CLEC for purposes of permitting interface activities with Qwest were populated in the necessary databases.	✓
The number of test iterations was identified.	✓
Test cases and iterations that were to be used to perform the evaluations were completed and available.	✓

### 3.4.4 Results

The EB-TA M&R scenarios were performed primarily to determine that the response to these transactions provided comparable information to both resale and retail. CGE&Y was able to verify that the functionality provided to both retail and resale was substantially the same. For example, the functions necessary for resale to open a trouble ticket were the same for retail and the data input requirements (i.e., TN, address, customer name, trouble code and description, contact information) were substantially the same. The resale trouble ticket is transmitted to Qwest through the ETTR ticket menu. If the transmission is successful, the frame containing the phrase "ticket has been successfully created" is received; if the transmission is unsuccessful, a message explaining what information is missing in order to create a ticket or why the ticket was not created is received. Comparable MLT results were received for both resale and retail. Trouble history and trouble ticket status were available to both resale and retail.

The functionality test will address M&R test scenarios in quantity in addition to actual troubles experienced by the Pseudo-CLEC's end-user customers. Performance measurement data specific to M&R will be gathered, calculated, analyzed and reported in the functionality section of the Final Report.

In the professional opinion of CGE&Y the quality and quantity of information obtained through EB-TA M&R transactions were substantially the same as that obtained by Qwest through similar transactions, and that the overall experience in submitting M&R transactions was also substantially the same for both.

\* CGE&Y Test Monitor collected data

The following MTP and TSD exit criteria were met for the EB-TA M&R test:

Criterion	Completed
All completed Retail Parity test scripts were processed, collected and retained by CGE&Y.	✓
The collected data were analyzed by CGE&Y.	✓
The findings from CGE&Y's analysis were documented in the RPE Report.	✓
Identified interface and system errors were resolved via the Master Issues Log Process and/or the IWO process.	N/A
All expected results, including issue and IWO resolutions, were achieved.	✓

## Appendix A - Glossary

ACC	Arizona Corporation Commission
AZ	Arizona
BOSS	Business Operations Support System
CARS	Customer Account Retrieval System
CEMR	Customer Electronic Maintenance and Repair
CGE&Y	Cap Gemini Ernst & Young
CLEC	Competitive Local Exchange Carrier
CSR	Customer Service Record
DCI	Doherty and Company, Inc.
EB-TA	Electronic Bonding – Trouble Administration
EDI	Electronic Data Interchange
FOC	Firm Order Confirmation
IMA-GUI	Interconnect Mediated Access-Graphical User Interface
ISC	Interconnection Service Center
IWO	Incident Work Order
LFACS	Loop (or Line) Facility Assignment Control System
LMOS	Loop Maintenance Operations System
LPIC	Local Primary Interexchange Carrier
LSR	Local Service Request
M&R	Maintenance and Repair
MLT	Mechanized Loop Test
MTP	Master Test Plan
OBF	Ordering and Billing Forum
OSS	Operations Support Systems
PIC	Primary Interexchange Carrier
POTS	Plain Old Telephone Service
PREMIS	PREMises Information System
RPE	Retail Parity Evaluation
SOP	Service Order Processor
TIRKS	Trunks Integrated Records Keeping System
TN	Telephone Number
TSD	Test Standards Document
WFA	Work Force Administration

## Appendix B – Incident Work Order Summary

IWO #	Incident Work Order	Qwest's Response	Results
AZIWO1019-1 C L O S E D	Trouble tickets successfully entered via IMA-GUI are not created.	Message passed to user via IMA-GUI indicates the request was forwarded to MEDIACC, not that the request successfully created a trouble ticket. In the examples the tickets had failed for various reasons, therefore the requested ticket did not exist. The implementation of CEMR, and its more specific responses should alleviate the confusion. In the interim, Qwest documentation was revised for further clarification.	Documentation Improvement
AZIWO1022 C L O S E D	Error received on USOC 'RBE1X' (Restricted – do not remove.)	Qwest ISC failed to follow the process to obtain a valid USOC list; ISC failed to follow the process to correct an LSR containing non-resale USOCs	Updated Frequently Asked Questions on Website; Training
AZIWO1023 C L O S E D	Documentation indicated that the End User Form DQTY field should auto-populate based on disconnect segments. All attempts to process a disconnect LSR without manual entry of a DQTY quantity resulted in error message.	The DQTY form should not auto-populate, and is required on disconnects.	Documentation Improvement
AZIWO1024 C L O S E D	Zip code entries on M&R Open New Trouble Report transactions return an error message indicating that the zip code must consist of five digits.	Trouble could not be replicated. Qwest suggested that the user may have inadvertently and incorrectly entered a space or other invalid character in the field.	Not Applicable
AZIWO1025 W I T H D R A W N	Unable to expedite due date for staging a test account.	IWO withdrawn 01/12/01.	
AZIWO1026 C L O S E	M&R IMA-GUI Open Non-Design Trouble Report check-boxes for "Return Trouble Report Status" selections allow both "e-mail" and "neither" simultaneously.	10/27/00 still under investigation by Qwest. IMA-GUI M&R replaced by CEMR.	Not Applicable

IWO #	Incident Work Order	Qwest's Response	Results
<b>D</b>			
AZIWO1027 <b>C L O S E D</b>	IMA-GUI interface "errors" occurred throughout resale-side testing with no equivalent retail-side OSS errors.	The errors occurred on the resale side and not on the retail side because the resale transactions require translation on the retail side, while the retail transactions do not.	Not Applicable
AZIWO1028 <b>C L O S E D</b>	Pseudo-CLEC received contradictory / confusing verbal and written responses from the Qwest ISC following the cancellation of a disconnect LSR.	The original LSR had a DDD of 10/16/00. The Supp-to-Cancel was not issued until 10/17/00 – after the disconnect had already been completed. The ISC procedures to modify completed orders was not followed.	Training Opportunity
AZIWO1029 <b>C L O S E D</b>	IMA-GUI auto-population of CLEC contact FAX number from CLEC Profile data results in an error when auto-populated to the Open Trouble IMA-GUI screen.	The IMA System Administration Guide, Section 4, Modifying Your Personal Profile example will be modified to include hyphens in the locations immediately prior to and following the NXX.	Documentation Improvement
AZIWO1031 <b>C L O S E D</b>	An "OSS Gateway: No Data Returned" error was received when attempting to process a multi-line PBX service new connect via IMA-GUI.	Qwest believes an incorrect class of service was used. CGE&Y verified with correct class of service.	Not Applicable
AZIWO1044 <b>O P E N</b>	Request for Qwest to establish a test bed / test environment for CLECs to use for EDI testing.	Already under consideration within the CICMP forum	
AZIWO1110 <b>O P E N</b>	Pre-Order response times are consistently longer for CLECs than for Qwest.	Qwest believes that CGE&Y is making apples-to-oranges comparisons and that the statistical differences found are not meaningful. Number of preorder queries are not always equal, number of measured options are not always equal & Qwest believes differences are not meaningful when taken in the context of a customer contact.	
AZIWO1111 <b>O P E N</b>	The numbers of fields and steps required to complete an order are greater for CLECs using IMA-GUI versus Qwest.		
AZIWO1112 <b>H O L</b>	Vanity TN reservation functionality is available to the Retail representative; no similar capability exists in the IMA-GUI system for	Qwest will provide this functionality in a two-phase process. Phase 1 (July 9, 2001) via a stand-alone GUI interface; Phase 2 (December 2001 IMA 9.0) directly through	Functionality Improvement

IWO #	Incident Work Order	Qwest's Response	Results
<b>D</b>	the CLEC representative.	the TN reservation Pre-Order functionality.	
AZIWO2001 <b>C</b> <b>L</b> <b>O</b> <b>S</b> <b>E</b> <b>D</b>	Designating Blocking attributes via the Resale Form result in SAVE error.	IMA User Guide documentation will be clarified.	Documentation Improvement
AZIWO2002 <b>C</b> <b>L</b> <b>O</b> <b>S</b> <b>E</b> <b>D</b>	IMA-GUI intermittently fails to auto-populate LSR From Admin Section AGAUTH field even though the field was correctly populated during the Review CSR pre-order transaction.	Correction included in IMA 6.0 release scheduled 12/2000	Process Improvement
AZIWO2003 <b>C</b> <b>L</b> <b>O</b> <b>S</b> <b>E</b> <b>D</b>	A successful IMA-GUI CSR Validation query response displays the originally input CUSTOMER NAME entry as the CSR's NAME data entry even when the actual CSR does not have such a name.	This is working correctly. Bringing the NAME field forward onto the CSR response window allows a service representative to keep track of the way in which the customer has referred to him/herself in the customer contact while preserving the proper and exact entries of the listed and billed names on the account .	Not Applicable
AZIWO2004 <b>C</b> <b>L</b> <b>O</b> <b>S</b> <b>E</b> <b>D</b>	IMA-GUI consistently returned "No Telephone Numbers available for this address" over 5 repeated TN Availability attempts encompassing a 19 minute sequential period.	A user can only reserve up to 9 TNs for any given address at a time. Because only 2 TNs were returned on the initial query Qwest concludes that there were already 7 TNs reserved for the address. Qwest will update the User Guide documentation to provide further clarification for the user.	Documentation Improvement
AZIWO2008 <b>C</b> <b>L</b> <b>O</b> <b>S</b> <b>E</b> <b>D</b>	TNs reserved during IMA-GUI Pre-Order TN Availability transaction returned a "No Telephone Numbers have been reserved" message when TN LIST was selected on the Resale Form.	Qwest believes that the script performer did not actually select the TNs from the originally returned TN list. If TNs are not selected from the TN Availability list within 30 minutes they are returned to the pool.	Not Applicable
AZIWO2009 <b>C</b> <b>L</b> <b>O</b> <b>S</b> <b>E</b> <b>D</b>	An "RGG1" USOC selected during LSR processing returned an error message.	The USOC was invalid. The USOC submitted was "RGG1+." The user is expected to replace the "+" with the desired value obtained in pre-order. Documentation has been clarified.	Document Improvement
AZIWO2010 <b>C</b> <b>L</b> <b>O</b> <b>S</b> <b>E</b> <b>D</b>	Received an Error Message "No Telephone Numbers available for this address in response to a TN Availability query.	The PAV table queried by IMA caused the problem. The table, which contains the USOC, reseller, and switch information, had not been properly updated. Normally, a nightly CRON process updates the PAV table. Qwest has rectified this problem.	Process Improvement
AZIWO2011	A disconnect LSR with a due date	A Qwest service order was issued manually	Qwest

IWO #	Incident Work Order	Qwest's Response	Results
C L O S E D	of 10/17/00 was completed no later than 9/29/00.	with a due date of 9/26/00.	Coaching Opportunity
AZIWO2012 C L O S E D	The IMA-GUI LSR Admin screen DDD field could not be accessed to be overtyped when attempting to perform a supplement to modify the Desired Due Date of an earlier submitted LSR.	The original LSR contained a dispatch appointment, therefore the DDD could not be changed. The user must select a new appointment, then issue a supplemental order using the newly reserved dispatch appointment.	Documentation Improvement
AZIWO3001 IWO200-001 C L O S E D	5 accounts scheduled for M&R scripts were not provisioned with TNs	Account staging issues – Not IWO appropriate.	Not Applicable
AZIWO3005 IWO200-005 C L O S E D	Retail side "circuit ID" provided on the script was a billing number, and could not be used for performing M&R transactions.	Account staging issues – Not IWO appropriate	Not Applicable